

THE DEVELOPMENT OF REGULATIONS FOR PREVENTING
COLLISIONS IN INLAND, INSHORE, AND OPEN WATERS OF
THE UK DURING THE FIRST HALF OF THE NINETEENTH
CENTURY

Rudiger Bahr

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The Development of
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Inland, Inshore, and Open Waters of the U.K.
During the first Half of the 19th Century.



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THE DEVELOPMENT OF
REGULATIONS FOR PREVENTING COLLISIONS IN
INLAND, INSHORE, AND OPEN WATERS OF THE U.K.
DURING THE FIRST HALF OF THE 19TH CENTURY.

Rudiger Bahr

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"Juvenile Delinquency"

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By Post 6½d.



THE PERILS OF THE DEEP: "RUN DOWN"

DRAWN BY FRANK BRANGWYN

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ABSTRACT.

This work shows how the regulations to avoid collisions developed from local rules and unwritten agreements to Government law for steam-vessels within 75 years until 1850.

The chaotic state of shipping on rivers and increasingly in coastal and open waters since the introduction of steam propulsion and of the shipping industry in general was evidence of several reports which also made suggestions to remedy the evil. But this was not followed by legislative measures. The advantages of steam seemed to have forbidden any regulative interference including into safety matters (surveying vessels, passenger's safety, speed, lights, &c.). Bills to put steam navigation under law failed. Local regulations were drawn up but contradicted each other. The numerous suggestions and inventions to lights and sound signals ranged from useless, impossible, or even dangerous to very effective. Only as late as 1839 the Admiralty published an order of steering regulations for H.M. steamers which were soon adopted by the Trinity House, London for the whole of the U.K., contradicting well established practice but recognised in Court. The Steam Navigation Act, 1846 contained safety issues and steering regulations and empowered the Admiralty to make regulations as to lights which came in operation in July 1848. They also approved of a set of lamps and surveying the lights was discussed. The repeal of the Navigation Laws in 1848 was accompanied by discussions on state interference into shipping matters and trade policies. "The Mercantile Marine Act, 1850." which established the Board of Trade as the central and first body entirely concerned with shipping industry and trade also established local Marine Boards as out-posts. It regulated examination proceedings as well as health issues, log-books, inquiries into accidents, &c. and marked the beginning of more legislative and regulative interference into shipping industry. Once principal disputes became more and more subject to only technical improvements. "The Merchant Shipping Act, 1854." with over 500 clauses was the final consolidation of state interference.

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ABBREVIATIONS.

Bart.	Baronet
<i>Cap.</i>	Chapter (of Local and Personal Acts)
CAP.	Chapter (of Genaral and Public Acts)
Ed.	Editor
Esq.	Esquire
Geo.	George
F.R.S.	Fellow of the Royal Society
H.C.	House of Commons
H.L.	House of Lords
H.M.(S.)	His/Her Majesty's (Ship)
H.M.Y.	His/Her Majesty's Yacht
hp.	Horsepower
inst.	instant
K.C.B.	Knight Commander of the Order of the Bath
L.E.	Letter to the Editor
m.	million
M.P.	Member of Parliament
M.S.A.	Merchant Shipping Act
O.C.	Order in Council
P.R.O.	Public Record Office
R.E.	Royal Engineer
R.N.	Royal Navy
Vict.	Victoria
Will.	William

INTRODUCTION.

This work describes the development of regulations for preventing collisions in U.K. inland, inshore, and open waters during the first half of the 19th century and the background against which it progressed.

Maritime laws as early as in ancient and medieval times (Rhodian Sea Law, Law of Oleron, Code of Riga, Black Book of the Admiralty) dealt with collisions for the purpose of clearing liability questions. The Duke of York's *Sailing and Fighting Instructions*, published in 1670, contained an article of sailing and steering orders, which seems to be one of the earliest:¹

Where two ships of the same rank are sailing on the same tack, or on contrary tacks, and there is a necessity for one of them to bear up to the other, he that can with the most convenience bear up is to do it; but if it be equally convenient to both of them, then the younger captain shall bear up for the elder.

These published rules were only the confirmation of those suggested by Sir Richard Hawkins in 1593 and long in practise at the time of Charles II.² Had other regulations been known, for example that as to the ship on the port tack has to give way to that on the starboard tack, they would probably have been included. This quoted rule could not be found in the pleadings, decrees, or sentences of Admiralty Court cases of the 17th and 18th century as far as they were investigated by R. Marsden, Barrister-at-Law.³

The first proper steering rules for avoiding collisions and for showing lights came with Admiral Lord Richard Howe in 1776 which acted as the basis for the later system of the Rule of the Road and survived almost unaltered. It dealt with altering the course of ships approaching according to the direction of wind rather than to the rank of the commander of the ship as was previously the custom. It also dealt with showing lights at the cat-head as a kind of side-lights and to let the other ship know the intended action of keeping the course or bearing up.

¹ Marsden, 1891, p. 339;

² Kemp, J.F., 1973, p. 15;

³ Marsden, 1891, p. 339;

Only the beginning of steam propulsion brought new regulations. Those of 1816 for the River Clyde were drawn up by the River Trustees of Glasgow and ordered steam-vessels to keep to the larboard side of the river and to hang up lights. A very similar code between two steam companies was made for the River Tay in 1824. Several other regulations for the Clyde followed, for example those of 1825 and 1828, including one code printed for the House of Commons in 1826. There were none for the far more crowded River Thames where steam-vessels displayed them from any part of the vessel they liked. Sailing-vessels did not carry any lights at all. Several codes of bye-laws were made for the Thames by the Court of Lord Mayor and Aldermen, empowered to do so by the Watermen's Act of 1827. But the definitions in the Act were so unclear that it remained a dispute for more than 10 years if steamers were included in that Act. Consequently the steamers carried on racing through the River with overloaded passenger vessels risking the lives of lightermen and others.

As late as October 1831 the first House of Commons Report inquired into accidents in steam navigation especially on the Thames which was a result of petitions made by the Thames watermen and by shipowners. The rising number of steamers since 1815 caused much inconvenience to the watermen and damage to their wherries through undulation and speed. The situations at night were even worse. The Select Committee recommended in their Report the regulation of speed measured by revolutions per minute of the paddle-wheels, and the carrying of three lights, two horizontally fixed on a foremast and one light under the bowsprit or at the stem. The Committee also drew attention to the evidence given that it should be generally understood that the helm of steam-ships being 'Stem-on' should be put a-starboard. None of these recommendations were adopted.

Bills to regulate steam-vessels on the Thames concerned first of all the survey of hull and machinery, certification, boats, number of passengers, speed, lights, &c. Altogether seven Bills were brought in, in 1831 (1), 1832 (4), 1835 (1), and 1836 (1). The first tried to introduce high penalties to already existing bye-laws made by the Lord Mayor as Conservator of the River in August 1829. The second adopted some recommendations of the Steam Navigation Report, 1831 and was applicable for the River Thames between Windsor and Yantlet Creek. The fourth Bill was a well thought-out piece of legislation especially in terms of ships' survey. The Lights were

supposed to be shown on all rivers and coasts of the U.K. But on re-commitment it was cut back to an alibi piece and exempted the River Clyde and H.M. Vessels. The last of these Bills ordered a light at the mast-head and one at each cat-head to be carried between Windsor and Yantlet Creek. None of these Bills proposed any passing regulations. But one after the other failed to pass the House because the M.P.s were concerned about checking the progress of steam power and new profitable trade prospects rather than about passenger safety. They, and the steam-vessel proprietors did not want any governmental interference as it could be only restrictive.

The Report of the Commissioners on Pilotage in February 1836 contained an appendix of "Proposed Regulations For The Navigation Of Steam Vessels" which regulated their speed, the way of passing and the carrying of lights: one on each yard-arm and a third either horizontally with the port light or vertically underneath it according to whether the ship proceeded down or up-river. Again, no measures followed.

The situation on the Thames and in the Port of London became unbearable. The Pool was excessively crowded and the steamers were racing through a fairway of less than the ordered 300ft., daily upsetting and running over the lighters and wherries with loss of life. The bye-laws of the watermen were ignored by the masters and it was still doubted if the watermen had a legal right at all to make these bye-laws. The harbour-masters were accused of abusing their power because they could not be dismissed for not enforcing them. The Navigation Committee, which had to sit and to instruct the harbour-masters over day to day things, was in fact unable to cope with the demands and were rather instructed by the harbour-masters due to the way the Navigation Committee was 'elected': through a rotatory scheme rather than by their knowledge and experience about navigational matters.

As a result the Select Committee on the Port of London published a Report and Minutes of Evidence of 600 pages in August 1836. The main witness was Sir John Hall of the St. Katherine's Dock Company. Long discussions arose over the width of the fairway between the tiers of moored colliers (a subject which was already extensively discussed and subject of numerous petitions before), the fitness of the Navigation Committee, the size and build of the watermen's wherries, &c. The Report itself of just one and a half pages suggested to transfer the supervision of the

Thames to one single body, to moor the colliers properly, or to build collier docks. Other issues were the shoals and banks silting up the river. It suggested further restrictions to speed and the number of passengers but no lighting system or local rule of the road. No steps followed.⁴

In the meantime several codes of harbour-master regulations, steam-vessel regulations, and police regulations were issued for the River Clyde and the port of Glasgow, each of more than 60 clauses, the last so far of 1834. The River Tyne got a set of regulations in 1835, and the Trinity House of Hull issued such for the Rivers Humber, Ouse, and Trent in November 1836. Well established but obviously unwritten rules existed for the River Mersey and the English Channel. The regulations for the Rivers Clyde, Tay, Tyne, and Humber included also instructions as to lights, those for the Humber were even more precise than those for other rivers. But there was no uniformity in these rules, neither to passing nor to lights, and consequently just these rules led to collisions because of confusion. On the Clyde, Tay, Humber, and Mersey the steam-vessels passed starboard to starboard, while on the Tyne and in the English Channel they passed larboard to larboard. The masters often did not stick to the local rules of the area they were sailing in but to those of their home ports. There were still no regulations for the excessively crowded River Thames, in fact the custom to change the sides of the River to gain advantage of the stream was hardly doubted and widely accepted by most masters as an unwritten rule.

A Report on Steam-Vessel Accidents in 1839 established finally through questionnaires that local passing rules and lighting systems were developed either through custom, the river authorities, or the Trinity House, but also that in some ports the masters followed their own conveniences or experiences. In Liverpool for example were eleven different lighting systems in use by 1839. Some correspondents stressed the contradicting character of the passing rules and demanded an universal code, preferably for all maritime countries. The Commissioners recommended in their Report a vertical triangle of lights between the paddle-boxes and the mast-head, emphasised the need for an universal code of signals and for a Rule of the Road. Racing and the neglect of keeping a good look-out were recognised as other main causes of accidents.⁵

⁴ H.C., 1836 (557.);

⁵ H.L., 1839 (181.);

The lack of any kind of regulation resulted in numerous suggestions of passing regulations, modes of exhibiting lanterns, invention of lanterns itself, and finally the way of screening them, for example screening one light only across the bow as to give an indication if two steam-vessels when meeting and seeing each other were able to cross the other's path with safety. This plan had not worked at all. There were even suggestions for audible devices to tell others the direction a vessel was going, either up or down-river or in particular compass directions. These signals were meant for general use, not only for fogs and hazy weather. Lanterns were made as indicators of movement of paddle-wheels, for showing the tack the sailing-vessel was on, or as direction indicating lamps rather than as navigation lights. These were mostly bright all round lights. The suggestions of light and especially of sound arrangements were often cosy living room inventions. But in consequence of the lack of any regulation every single suggestion was welcome by, for example, *The Times*, *The Nautical Magazine*, and its successor *The Nautical Magazine and Naval Chronicle*.

An important development was made in 1834 by the City of Dublin Steam-packet Company of Liverpool. The vessels carried, by order of their owners, one mast-head light screened to 180 degrees and one light at each paddle-box screened to around 35 degrees on their respective side of the keel line. The light on the larboard side was coloured red. This vertical triangle of lights was so successful that it was seen by more and more masters and owners as a solution to the problem of lights at sea but it was by no means at all widely adopted. There were still opinions that one light, wherever displayed, would be enough.

Regarding meeting and passing of ships at sea there were the long established rules for sailing-ships but there did not exist any for two steamers meeting or steamers and sailing-vessels meeting. Local river rules were practised also at sea but, because of their contradictory character, led to collisions. A code of passing rules was drawn up by the Admiralty in 1839 for their men-of-war steam-ships. The Trinity House, London adopted them on October 30, 1840 for merchant ships and made them applicable to the whole of the U.K. They had not the force of law but were acknowledged by the Courts. A risk of collision had to be established before action should be taken to pass on each other's larboard side, exactly the opposite of the well

established practice in most rivers. These local rules had to be abandoned but led only to confusion and more collisions. Regulations for lights were not made.

Not very much happened until 1846. Regarding the Thames the reckless competition and problem of overcrowding became more pressing with growing boat sizes. The dispute between the Watermen's Company and steam-boat proprietors was still not settled. Legal proceedings were seen as impossible in cases which happened outside the Pool. Several bye-laws were made but none was put into operation. The steam-boat owners made clear they would not co-operate with the Court of Common Council as long as the watermen were given power to regulate steam-vessels in bye-laws. A code of February 9, 1846 was finally put into operation.

A Civil Engineer of Glasgow, Robert Rettie, offered the Admiralty in 1843 a direction indicating lamp for trials at his own expense. But it was impossible for him to make them understand the purpose and importance of such lamp which could also tell what kind of vessel was a-head, and show pilot and distress signals. The Admiralty made very clear that it was not interested in a system of lights. Only almost two years later and obviously after a change in personnel the Admiralty offered Mr. Rettie, in February 1845, to give the lamps a full trial at his own expense. They went on trial in Portsmouth harbour in different kinds of weather conditions during November and December 1845. The results were mixed but overall it turned out that the single coloured lights were useful while the mixed coloured lights were hard to distinguish. This lamp was not adopted although many steamers were equiped with it.

The Steam Navigation Act of 1846, which came into operation on 1st January 1847, ruled in one of its clauses that steam-vessels had to pass each other on their larboard sides in open seas as well as in rivers and channels, but only "as far as may be safe" and "due regard being had to the Tide and to the Position of each Vessel in such Tide". The word 'collision' did not appear in the clause. The Admiralty was empowered in another clause to make and issue orders as to lights to be carried on the U.K. inland waters and up to 20 miles off the coast. The River Thames was excluded from their jurisdiction.

In December 1847 the Admiralty proposed the lighting system which is still in use in its basic form today: a white mast-head light, a green starboard light, and a red port light, showing over an arc of the horizon of twenty, respectively ten points each,

of the compass. They had to be screened by canvas screens so as not to show across the bow so that they were visible by another vessel only from a stem-on position. The lights were applicable to steamers only. An annexed diagram of six meeting and passing situations showed the working of the lights. This plan was previously already tried out by several steam-boat companies and was adopted for the Royal Navy steam-vessels. It was then ordered by a notice of July 11, 1848 in *The London Gazette* and came into operation ten days later.

But during investigations made by Captain Henry Mangles Denham, first in the principal ports of the west coast and after request also at those of the east coast, it appeared that most of the steam-shipowners were reluctant to spend money on lamps giving the required lights or had other lights in addition. The screens were often not in the required position either. Captain Denham made these investigations together with the local Board of Trade surveyors to establish if the survey of ships' lights and screens could be included in their half yearly surveys of hull and machinery. The surveyors were very pleased to do so. Captain Denham also wanted to make the surveyors self paid by imposing a survey fee on each steam-vessel which would also pay a permanent and always referable full time surveyor.

Summarising the causes of collisions it would appear that first of all, because of being easiest to deal with, excessive speed of steamers and the overcrowded state of passenger steamers were responsible for accidents on rivers. Both speed and deckspace available were two bonuses of steam propulsion which only made sense when they were taken advantage of. But the busy state of the Pool and the disrupted view of the helms-man forward or towards the look-out on the paddle-box had called for immediate legislation.

A specific light exhibited in a defined way from a-board a steamer was first made compulsory by a bigger authoritative body in the Trinity House, Hull order of November 10, 1836. The first legal U.K. regulations appeared as late as 11th July 1848. Before these dates it was entirely up to the individual master or company to order any light to be and how to be displayed if at all. Few of these patterns became more common but only on a local level. But even within them they differed greatly and were cause for confusion and collisions, even more since the lanterns used were mostly all-round lights and, when hanging low, blinded the look-out.

Similar with the steering and passing practices. The differences between local customs inevitably had to lead to accidents and collisions. For both lights and passing regulations these differences were partly due to east coast (London) and west coast (Liverpool) rivalry.

The lack of regulations towards sound signals during foggy or hazy weather was also responsible for a great number of collisions as the crew had to rely on the noise made by the paddle-wheels through the water.

Another frequent cause was the exemption of sailing-ships from lighting regulations. The fast approaching steamers could not recognise them in time. As lights between two sailing-ships meeting were hardly necessary the legislature thought only about regulating the steamers for they were the new appearance which changed the situation dramatically through their increasing number, their speed, and their independence.

Several other causes were made out in a book by J.H. Ridley, Master himself:⁶

[. . .] Accidents frequently happen through carrying improper sails, with which the ship is not under good command, or such sails that those in charge cannot see ahead. Other causes are: shifting the helm too often; an improper rig and build of ships; fitting up blind houses about the deck, so that ships cannot be properly managed; and a want of quick communication between those in charge and the helmsman. [. . .] It is a very common and dangerous practice to be running about the decks with a light to show your position when close upon another vessel, as it prevents those in charge from seeing the course, and watching the movements of the other ship, at the very moment when this is of the greatest importance. [. . .]

[. . .] I have seen many instances of ships on both tacks bearing up, and thereby risking collision, when there was not the slightest danger if they had kept on their reach. Another dangerous practice is, for vessels, when running, to attempt to cross the bows of ships on a wind, and this is particularly the case with some foreigners. [. . .]

[. . .] I have made inquiry, and heard that it is the practice in some large steam-ships for the sailors on the look-out to give orders to the helmsman in the event of a ship being seen at night. There appears something very wrong in this system, which invests men of no responsibility, and of whose judgement little or nothing may be known, with the charge of the ship at the very time there is most danger. [. . .]

Again, all lanterns should be made perfectly wind and water tight—very few lanterns now in use on board ships being sufficiently tight so as to keep lighted in bad weather. [. . .]

The similarity of the words 'larboard' and 'starboard' was a potential source for confusion and mistakes. The Admiralty therefore published a circular in 1844 for H.M. Ships only which ordered to substitute the word 'port' for the word 'larboard' to

⁶ Ridley, 1854, pp. 1-5;

establish uniformity as it was experimentally in use for about 20 years. This order was adopted by the mercantile marine but it took some 15 years to run out of use.⁷

The years from 1780-1860 were a time of great industrial revolution, political reform, social education and revolution.

Figures for the size of population for the whole of Britain between 1700 and 1800 are not easily available. Estimates for England and Wales show a population of 5.29m. in 1701, 6.20m. for 1751, and 9.16m. for 1801 (the first census in the U.K.). This means a very irregular but steady growth between 2.7% and 10.8% for each decade but with a decrease in population size in the 1720s and 1730s.⁸ Population figures for Scotland of 1.04m. in 1701 and 1.25m. for 1751 are not very certain.⁹ The census of 1801 showed a population of 1.62m. people for Scotland.¹⁰ Cities grew faster than other places, a result of migration from rural areas and a falling death rate in urban areas. London was the least expanding city but always the biggest. By 1801 between 7% and 8% of the population lived in cities of more than 50,000 people.¹¹

Although a new census was carried out every ten years at the beginning of each new decade the available data for the 19th century are always based on different criteria. Overall the increase in percentage speeded up with 19% for England in the decade before 1831, with 17.5% for Wales in the decade before 1821, and 15.8% for Scotland in the decade before 1821. Since then the growth of population slowed down in all three countries until about the census of 1861 and 1871.¹² Liverpool, Manchester, Birmingham, Leeds, and Sheffield were among the biggest cities in 1861.¹³

While in the 14th and 16th century the national income remained about the same in spite of the fall and rise of population, the period from 1780-1860 saw a rise of national income in real terms to two and a half times the amount because the workers were more productive than before. As the income from agriculture could not

⁷ *The Nautical Magazine And Naval Chronicle, For 1845*, (Vol. IX), p. 37; *The Mariner's Mirror*, Vol. II, (1912), pp. 89-90;

⁸ These estimates were done by the Cambridge Group for the History of Population and Social Structure (Lee and Schofield, 1989, p. 21);

⁹ Lee and Schofield, 1989, pp.17-18;

¹⁰ Flinn, 1977, p. 302;

¹¹ McCloskey, 1989, p. 106;

¹² Evans, 1983, p. 404;

¹³ McCloskey, 1989, p. 106;

grow (its share in national income sank steadily from 35.7% in 1811 to 17.8% in 1861) it was the industrial sector which did. Industrial share in manufacture, mining, building and in trade and transport increased steadily but slowly from the second and third decade respectively to 36.5% and 19.6% in 1861.¹⁴ The number of workers increased by 1.3% per year while the value of tools and machines grew by 1.6% per year illustrating an increase in the value of tools. They were used much more efficiently than before through technological change as investment was used to replace older technology.¹⁵ But not all additional income was re-invested or used to repay debts by the government. Where did the money go? Was it used to improve the quality of life through investment into health care and education? Did the profit of manufactures go into higher wages and savings or for higher living standards of the working classes? Or did it simply make the middle and the higher classes richer and widen the gap between them and the working classes?

Although the U.K. spent more than half of the 18th century in wars it was the most developed country in the world as only a minority of people were entirely dependent on agriculture as source of employment. Industrialisation and science were well advanced by the 1780s. 'Atmospheric engines' raised water from mines in the early 18th century. The first canal of importance was built in Lancashire in 1755 and triggered a 'canalmania'. Huntsman of Sheffield invented the casting of steel in 1760. Josiah Wedgwood introduced scientific principles into the pottery industry in 1763. Steam and water-driven bellows were applied to furnaces. Boiling off carbon from iron to strengthen it was used as alternative for making wrought iron. Demand in iron and consequently in charcoal prices led to a shift to coke-smelted iron although it was of poorer quality. Nails were machine made from 1790. Important inventions of the 19th century were: lathes for making metal bolts and screws from the 1800s, the safety lamp for mines, machine-made clay drainage pipes, wire rope, and chemical fertilisers from the 1840s. Between 1818 and 1829 1000 miles of highways were built in England and Wales and the old ones renewed. More than 1000 bridges were built in Scotland between 1803 and 1844.

¹⁴ The total of the national income nearly doubled between 1801 (£ 232m.) and 1841 (£ 452.3m.) and more than doubled again until 1871 (£ 916.6m.); Evans, 1983, p. 392;

¹⁵ McCloskey, 1989, pp. 106-08;

Cotton cloth underwent the most spectacular change: imports of raw cotton increased from less than 5m. pounds in 1770 to 54m. in 1800, and 360m. pounds in 1836. Kay's Flying Shuttle of 1737, Hargreaves' Jenny (1764), and Arkwright's Water Frame (1768) increased the weaving and spinning speed enormously and led to the steam-driven power loom invented in the 1780s with its height of introduction between 1826 and 1830. Productivity change during this time saved the industry some 13% of its cost. The production of cloth moved from home industry to factory production. James Watt established the first steam weaving-mill in 1785. In 1833 yarn was spun with a length of more than 5,000 miles. 100,000 steam and 240,000 hand weaving looms and 44,000hp. were employed to produce cotton cloth. 1.5m. people lived directly and indirectly from the cotton weaving industry. The price of cotton cloth declined from 70-80s. in the 1780s to about 5s. in the 1850s due to further innovations in preparing, spinning, and weaving. Printing, bleaching, and dying of cotton profited from chemistry. For example the process of bleaching was shortened from months to a few hours. Similar developments concerned the processing of wool, flax, and silk. The looms were all based on those of the cotton factories and were quickly improved. A new production line was also introduced, looms itself were produced by other machines, machines were made by machines.¹⁶

The steam engine was the other major if not most important impact on the labour market, social environment, and life's quality. James Watt developed his steam engine through improving those of his predecessors like Savery and Newcomen by reducing the fuel consumption and enabling it to drive the mill machinery directly. This saving amounted to about 40% compared to the atmospheric engine and to 60% in the case of the Watt reciprocating engine. Around 12,500hp. of Watt's engines and 16,500hp. of atmospheric engines were installed by 1800, but only the Watt engines ran so smoothly that delicate fibres could be spun.¹⁷

Steam engines enabled the coal miners to sink the mines much deeper and made them much more and quicker accessible. A huge number of new mines, not only coal mines, were opened. In 1800 Britain exported 4,300 tons of iron products and copperware each and 4,600 tons of bar iron, which grew until 1835 to 16,000 tons of iron

¹⁶ McCloskey, 1989, pp. 108-10, 113; von Tunzelmann, pp. 146-47; Marx/Engels Werke, 1970, Vol. I, pp. 560-63, 565;

¹⁷ von Tunzelmann, 1989, pp. 156-57;

products, 92,000 tons of bar iron, 14,000 tons of cast iron, and 10,500 tons of copper and brass products.¹⁸ The application of steam to transport and its technical development is well known.

The revolution of science was already over for it occurred mainly in the 18th century. Newton (1642-1727) established scientific astronomy with the law of gravitation, scientific optics through refraction, scientific mathematics through the binomial theorem, and scientific physics and mechanics through the laws of motion. Chemistry owed its status to Black (1728-1799), Lavoisier (1743-1794), and Priestley (1733-1804). Scientific voyages were carried out, and biology also gained a scientific basis through Buffon and Linné.¹⁹ Science contributed little to the progress of industry as its achievements had no overlap with the needs of industry but science profited immensely itself. For example Cornish steam engines employed to drain mines led to the knowledge of the laws of thermodynamics.²⁰

Foreign trade expanded to 544%, the home industries only to 152% between 1700 and 1800. Imports from Europe at the beginning of the century included linen, wine, timber, naval stores, and bar iron. English exports consisted mostly of woollens, but also of processed and manufactured goods, re-exports (goods imported to be exported) of which most (85%) went to Europe, of tobacco, sugar, dyes, and other tropical products from the colonies. Exports of £ 3.8m. and re-exports of £ 1.8m., both to Europe, paid for the imports.²¹

Over the 18th century the European market lost its importance for English imports and exports (only in relative terms) due to the rapidly growing colonial market especially along the Atlantic Ocean. The North American colonies and West Indies accounted for only 20% of English exports in 1700, but by the end of the century they have risen by 2300%. The colonies were forced by law to buy from their mother country. The tonnage of the British merchant fleet grew over 326% between 1702 and 1788 and was the most efficient in the world. While 80% of British imports, 69% of British exports, and 86% of all re-exports went through London's port at the beginning of the century the capital lost its dominant position with the changing

¹⁸ Marx/Engels Werke, 1970, Vol. I, p. 564;

¹⁹ Ibid., p. 551;

²⁰ von Tunzelmann, 1989, pp. 148-50;

²¹ Thomas and McCloskey, 1989, p. 90;

geographical pattern of trade from the East to the West. Outports such as Whitehaven, Liverpool, Newcastle, and Bristol together expanded more rapidly than London.²²

A major part in this development was played by the Navigation Acts which originated from 1650 and were since then several times re-considered. They regulated the nationality of crews and ownership of vessels for foreign trade, the destinations to which certain colonial products could be shipped,²³ a complex system of rebates, drawbacks, import and export bounties, export taxes in support for the home industries, and the manufactures in which the colonies were allowed to engage. Additionally British manufacturers of linen, gun-powder, silk, and many non-woollen textiles enjoyed bounties which enabled them to compete with foreigners on the colonial market. Furthermore the colonies were forbidden to manufacture certain goods to protect the home industries. The U.K. provided the colonies with slaves to make possible a self-sustaining monopoly.²⁴

So much for the overall situation.²⁵ A closer look into the shipping and shipbuilding industry during the first half of the 19th century shows that its situation was much more diverse. By 1815 Britain possessed a merchant fleet of nearly 2.5m. tons. which rapidly declined, than the rate slowed down before the 1830/34 period. The end of the Napoleonic wars made second-hand tonnage easily available which depressed the shipbuilding industry until the mid 1830s. Falling freight rates for ten years between 1823-33 also contributed. New demand for tonnage resulted in a short-lived boom between 1837 and 1841 when 840,000 tons were built, nearly twice as much than during the previous five years. But after 1841 orders for new vessels declined as freights and rates fell. Sunderland for example closed down half of its building yards within three years. It was not before 1848 that demand for tonnage

²² Thomas and McCloskey, 1989, pp. 91-92;

²³ 'Enumerated' goods could only be shipped to the U.K.: originally it concerned only tobacco, sugar, indigo, cotton, ginger, fustic, and other dye-woods; later naval stores, hemp, rice, molasses, beaver skins, furs, and copper; still later (1764) coffee, pimento, coconuts, whale fins, raw silk, hides, skins, potash, and pearl ash (Ibid., 1989, p. 94);

²⁴ Ibid., 1989, pp. 94-95;

²⁵ For developments in political, social, and educational matters see the Conclusion;

capacity stimulated the building of new ships although the shipowners²⁶ added every year to their tonnage from the mid 1830s.²⁷

The development of freight levels and value for both import and export followed a similar pattern closely connected to the duties and bounties as set out in the Navigation Laws. During the ten years following the war the yearly average growth of export volume was about 2%, too little to order new tonnage. British exports were much smaller than import volumes and even in 1827 more than a quarter of all vessels entering British ports had to be cleared in ballast. As late as 1842 the exports exceeded the imports, a result of the coal carrying trade.²⁸

The Navigation Laws were from time to time re-considered and the relaxation of restricted trade began long before serious efforts were made to repeal the Navigation Laws. In May 1820 Lord Liverpool (Tory; First Lord of the Treasury 1812-27) gave a speech about the advantages of free and unrestricted trade but in fact the duties especially on wool were increased between 1815 and 1822. Foreign trade grew faster from the early 1820s through increasing consumption and better competitiveness for manufacturers when Frederick J. Robinson's (Tory; President of the Board of Trade 1818-Jan. 1823 and Chancellor of the Exchequer 1823-27) reduced excise duties on consumer goods and raw materials like iron, hemp, coal, rum, books, and porcelain. Commercial treaties on the basis of mutual reduction of tariffs (reciprocity treaties) were made with foreign countries, and foreign vessels had easier access to British ports partly through investing in port facilities. The Navigation Laws were relaxed by five Acts in 1822 which put all European countries on an equal base but trade within the Empire remained still closed to foreign vessels. The new President of the Board of Trade, William Huskisson (Tory; Oct. 1823-27), again lowered the duties on general goods in spite of knowing that foreign goods might push aside British manufacture unless "they will excite the ingenuity of our artists and workmen, to attempt improvements, which may enable them to enter the lists with the foreigner in those very articles in which he had now an acknowledged superiority." (speech to the

²⁶ Shipowners at this time should rather be called 'investors in shipping' for they were not entirely dependent on income through shipowning or shipping shares. They were mostly engaged in wider commercial or maritime interests as merchants, shipbuilders, or masters (Palmer, 1990, pp. 11-12);

²⁷ Palmer, 1990, pp. 1-3;

²⁸ Ibid., pp. 2, 5-6;

House in 1825).²⁹ These reciprocity treaties had nothing to do with the Navigation Laws but were legislation on their own. They resulted in a diminution of protection of a national fleet. Charges and duties on vessels or its cargo existed in other countries as well. Promptly the freight levels fell for which Huskisson was made responsible by the shipowners. It also meant a loss of income to those who received duties before and they had to be recompensed. In 1833 the freight rates were still low. Within the last ten years they fell by 40% in the Mediterranean, by 25-33% in the Baltic and by nearly 50% in the North American Trade. Trade was revived with the 1842 budget of Sir Robert Peel (Conservative; First Lord of the Treasury 1841-46) who reduced the duties on imported corn by nearly 50% of the level of 1828. In the budget of 1845 he repealed the duties on British goods altogether as well as import duties on most raw materials including cotton. Sugar duties, already reduced in 1844 against furious resistance, were further reduced. The British merchant tonnage increased by 40% from 1820 to 1850 but the volume of cargo grew much quicker. In the overseas trade about 7.3m. tons per year were cleared into and out of British ports and vessels by the late 1840s, equalling a growth of nearly 100% within 20 years. The coastal trade increased by almost 50% in about 15 years from 8.7m. tons to 12.7m. tons until the late 1840s. This development was made possible through the increase of vessel size and new docks like those in Bristol, Hull, Liverpool, and London, and through a revolution in cargo handling which reduced the time in port. Steam-tugs could tow sailing-vessels out to sea in spite of unfavourable winds and tide. Steam-ships, being independent from these circumstances, could carry three times as much as the same tonnage of sailing ships due to being faster and therefore making repeated voyages.³⁰

²⁹ as quoted by Evans, 1983, p. 193;

³⁰ Evans, 1983, pp. 192-93, 250, 366, 370; Palmer, 1990, pp. 2-3, 6-7, 42, 51;

ADMIRAL LORD RICHARD HOWE'S REGULATIONS, 1776.

On June 13, 1776 a Captain Cornthwaith Ommary of H.M.S. *Tartar* received a signal book from Admiral Lord Richard Howe, at that time commanding a fleet off north-east America supporting his brother William.¹ His rule was thus:²

It is to be observed, in order to avoid inconvenience from the customary practice, founded on the regulations specified in the General printed Sailing Instructions, with respect to the conduct of senior officers towards their juniors; that the ships of war are to bear-up for each other, shorten sail, &c without regard to the seniority of the Commanders, or other claim of distinction, in such manner as shall be found most convenient on either part, and may best guard against the hazard of falling on board each other.

The same attention is likewise to be had, on all occasions, in giving place to, or otherwise accommodating, ships proceeding as directed by signal from the Admiral, or making the signal to speak to him.

And to lights thus:³

Observation. — *It is always to be observed when two ships approach near to, or are crossing each other on different tacks, that the intention of keeping the wind, or bearing-up respectively, is to be made known by fig. 40. And to prevent accidents that might otherwise ensue from the want of timely and certain knowledge what part they mutually intend to take in this situation; the ship then on the Starboard Tack is (under the same circumstance of convenience) to keep to windward; and that standing on the Larboard Tack, to bear-up.*

The same precautions are to be taken in thick weather, in respect to ships put accidentally in stays, or passing on different tacks, or on any other occasion, through the fleet.

No. 40 in the index of night signals was this:⁴

To be shewn occasionally, to denote whether meaning to keep the Wind, or Bear-up; when crossing another Ship on different Tacks——

One at each Cat - *Head*, and a third Light over either of the two as meaning to keep the Wind or Bear-up

N.B. The extra Light is to be shewn over the Weather-Cat-Head, if meaning to Bear-up; But over the Lee-Cat-Head, if meaning to keep the Wind of the other Ship.

The convention of this time for ships of junior rank was to give way to ships of

¹ Kemp, J.F., 1976, p. 341;

² Howe, 1776 (Reprint 1989), part i, pp. 3-4;

³ Ibid., part i, p. 34;

⁴ Ibid., part ii, pp. 37-38;

senior rank.⁵ Easily applicable to ships of the same fleet this could not be done internationally or between merchant ships. These new rules could serve this purpose now and were probably quite radical for they omitted conventions like orders, ranks, &c. They were repeated in the *Night Signals and Instructions of the Ships of War*, 1793 and in the *Instructions* of 1816⁶ but, as Richard Hall Gover remarks in 1808, this was not always obeyed and sometimes the old rule by rank continued and led to confusion and collisions:⁷

It is a universal rule with seamen that, where there is doubt, the vessel upon the larboard tack is to bear up or heave about for the vessel upon the starboard tack; and were this prudent maxim never overruled by the obstinacy of parties, and the occasional imperiousness of men of war who pay not for damage, fewer accidents would happen.

Lord Howe's rule had to be made (the other way round had done it as well) because none of the ships was in advantage of having the wind more convenient than the other. In all other cases, as an unwritten rule, that ship which ran more free would bear-up for the other.

This rule might well have been meant by Sir C. Cole when, on March 9, 1826, a Bill was brought before the House of Commons for regulating steam-vessels in Scotland:⁸

The best regulation that could be suggested was that which prevailed in the royal navy, in which, by given signals, each ship knew on which side of the other it ought to pass.

It is surprising that course indicating lights fell into disuse early last century although there were numerous suggestions and inventions for course indicators, helm indicators and signals by both light and sound. Such light signals were not agreed upon until the International Conference on Safety of Life at Sea, 1960 and reintroduced into the International Conventions for Preventing Collisions at Sea which came into operation on 1st September 1965 but had to be operated simultaneously with sound signals (clause (28.)). They were allowed independently again with the regulations of 1972 (clause (34.)) which came into operation on 15th July 1977.

⁵ Kemp, J.F., 1976, p. 342;

⁶ Kemp, J.F., 1995, p. 257;

⁷ Kemp, J.F., 1973, p. 17;

⁸ *Hansard*, New Series, Vol. XIV, col. 1245;

THE NAVIGATION OF THE RIVER THAMES BEFORE 1832.

The Thames and Medway always were busy waterways, ideally placed towards the eastern European continent and therefore close to Britain's trade countries, especially the Netherlands, Germany, and the Baltic states. The wide estuary makes the rivers relatively easy accessible, only obstructed in the south-east by the Goodwin Sands and some small shoals at the north side of the estuary.

By 1700 London had nearly 600,000 inhabitants and was one of the biggest cities on earth. None of the other cities in Britain had more than 30,000 inhabitants. Only very few supplies came by road. By far most of the foodstuff, especially grain, and coal came by coastal shipping as the railway was not developed yet. London alone used up about a third of the country's coal production. The sailing-ships coming up the Thames sailed right into London itself with several thousand foot of quay frontage on both sides of the River (nearly 5,200ft. of legal quays and sufferance wharves) from the Tower to below London Bridge. Crowded situations and delays were unavoidable and in the 1760's the merchants were, without success, petitioning for extending the legal quays. Within the next 30 years the traffic in the Pool doubled. The figures for the year 1797 showed over 10,000 coasters and 3,500 foreign-going vessels coming up the Thames to London annually discharging into 3,400 barges. Goods often had to be left in barges for weeks acting as floating warehouses. Passenger boats for regular service on the Thames or beyond and other pleasure craft were also around. All of them were tacking their way between the lighters and ships moored in the River or along the banks wherever there was space left according to wind and state of the tide and it is surprising that there were no major accidents.⁹

The situation on the Thames, especially in the Pool, was no longer acceptable. The West India merchants met in September 1793 which finally led to the West India Dock Act in 1799¹⁰ and the London Dock Act in 1800,¹¹ the first commercial docks.

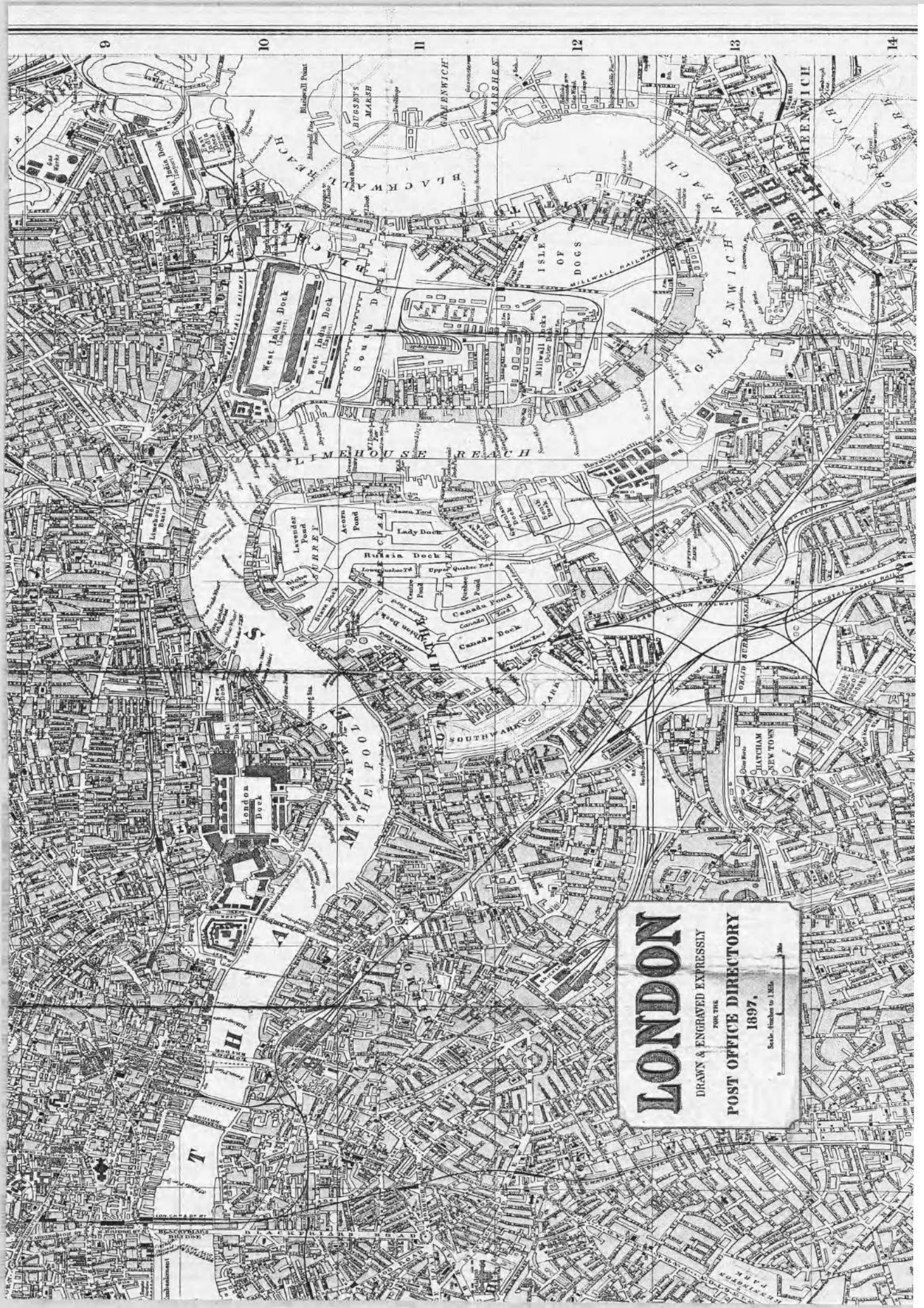
⁹ Background information in this chapter is mostly drawn from North East London Polytechnic, 1988.

¹⁰ 39 Geo. III., *Cap.* 69. An Act for rendering more commodious, and for better regulating, the Port of London. [12th July 1799.]; this Act also established with clause (164.) the Navigation and Port of London Committee;

¹¹ 39 & 40 Geo. III., *Cap.* 47. An Act for making Wet Docks, Basons, Cuts, and other Works for the greater Accommodation and Security of Shipping, Commerce and Revenue, within the Port of London. [20th June 1800.];

Part of Map of London. River Thames from London Bridge to Blackwall Point;

From: *The Post Office London Directory for 1897, 1896.*



LONDON

DRAWN & ENGRAVED EXPRESSLY

FOR THE

POST OFFICE DIRECTORY

1897.

Scale: 1 inch to 1 mile.

The West India Docks (Import Dock of 30 acres and Export Dock of 24 acres) were built on the Isle of Dogs and opened in 1802 and 1806 respectively. All shipments from the West Indies had to be unloaded there. The London Docks were built in the Pool at Wapping and opened in 1805. They turned out to be very profitable and led to the building of further docks down the River. This was followed in 1828 by the opening of St. Katherine's Dock in the Upper Pool.¹²

Before the commencement of steam conveyance there were 26 sailing passage-boats on the River of 22-45 tons burthen.¹³ The first steam-vessel on the Thames was the *Margery*, one of the first two steamers in English waters at all, launched in Dumbarton in 1814 by Messrs. Archibald MacLachlan and Co., later William Denny and Brothers, being 63ft. long overall, 50ft. in the keel, 12ft. respectively 19ft. 6in. in breadth.¹⁴ She served for a short time on the Clyde but was soon towed through the Forth and Clyde Canal to the east coast where the paddles were refitted before she steamed south to London for being employed from the 23rd January 1815 as passenger steamer between Gravesend and London. She made the voyage in five to six hours. In March 1816 she was sold for service on the Seine and succeeded by the *Thames ex Duke of Argyle* (65ft. 6in. keel, 25ft. breadth overall) after a short service on the Clyde where she was built under the latter name. She ran between London and Margate from 3rd July 1815 and made the voyage within 12 hours. From 1816 she was transferred to the London-Gravesend service where she remained until 1835 when she was broken up.

The size and number of steam-boats for passenger traffic on the River grew extraordinarily quickly and they were soon constructed also on the Thames. In 1820 four steam-packets completed 227 voyages. This figure grew to 20 steam-boats and 2,344 voyages in 1830 and to 43 steam-boats with 8,843 completed voyages in 1835. The inland communication improved as well and railways were connected to passenger piers which were before served by coach connections.¹⁵

¹² The Upper Pool reaches from London Bridge to Wapping-ness and the Lower Pool from Wapping-ness to Ratcliff-cross (Reid, 1839, p. 1);

¹³ Spratt, 1958, pp. 92-97; *Journal of the Society of Arts*, Vol. VII, p. 154;

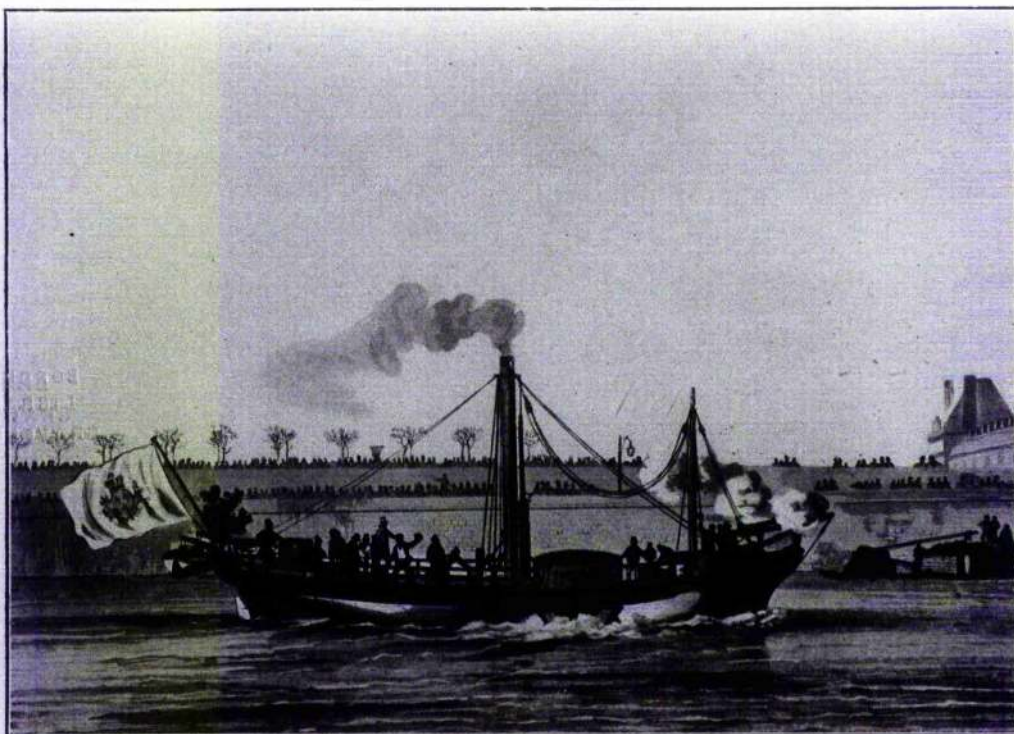
¹⁴ William Denny (1779-1833) was M'Lachlan's manager at the woodyard. He is said to be the designer and constructor of the *Margery*;

¹⁵ H.C., 1836 (557.), p. 3;

ELISE.—Early paddle steamer. One of the first steamers to make a cross channel passage. Built on the Thames as the *Margery* in 1816 she was renamed *Elise* by her French purchasers, and crossed the Channel. She had a stormy passage from the Thames to Newhaven, and thence fought her way to Havre against a strong southerly wind in 17 hours. Her scared crew begged to be taken back, but Captain Pierre Andriel served out rum and she eventually arrived in Paris March 29th, 1816, having been successfully navigated by Captain Curtis and Mr. Jackson, one of Fulton's fellow workmen who was at that time devoting his talents to the application of steam to navigate the rivers and waters of France. The *Elise* for some while ran a service on the Seine as far as Paris.

(a) Starboard view off the Chateau des Thuilleries, Paris. Aquatint 7 1/8 by 9 5/8. Inscribed:—
"Arrivee de Londres a Paris le 29 Mars, 1816, du Bateau a Vapeur *L'Elise* Capitaine Audriel represente saluant le Chateau des Thuilleries." (Then follow four lines of description.) "A Paris chez Ostervald l'aîne Editeur, Rue de la Parcheminerie No. 2."

From: Parker and Bowen, 1928, pp. 100-01.



XLIX—ELISE

After being built on the Thames as the MARGERY, the ELISE introduced steam navigation on to the Seine

The number of steam cargo vessels rose as well: 361 voyages with 73,634 tons in the foreign trade and 185 voyages with 48,100 tons in the coasting trade were the figures for 1830. 1,076 voyages with 266,684 tons in the foreign trade and 699 voyages with 181,740 tons in the coasting trade were the figures for 1835.¹⁶ But while the docks were used to handle the cargoes coming from abroad, the U.K. traffic unloaded overside into barges. As late as 1835 the docks still received only 950,000 tons out of 3.7m. tons coming into the Port of London. The number of colliers now reached the figure of 7,980 importing nearly 2.3m. tons of coal, an increase of 2,400 colliers and 450,000 tons of coal in ten years.¹⁷

The steam-vessels were not only speedier but the paddles projecting from the ships' sides made close passing dangerous as they left an enormous wash behind, about 23 degrees to either side of the vessel,¹⁸ which was reflected by the banks back into the River. Complaints by pleasure boat users, often unskilful persons, but far more by bargemen and lightermen were inevitable. The swell not only damaged the vessels while laying alongside and chaffing against each other but were often swamped, sunk, even upset, dragged under by the wheels, or run over with loss of life. It was the rapidity with which the steam-vessels approached which caused the evil. Accidents with sailing-vessels occurred as well but were less numerous and less harmful although they had to tack across the River or had little steerage way when going with the tide and when having only little wind. There was time enough due to the slowness of the sailing-vessels to take this into account when coming close to them.

When passenger steamers reached their destinations they rarely went alongside piers for landing passengers. Those about to embark between either destinations were helped into watermen's boats in the River while they were hooked on to the steamer by a boat-hook operated from the steam-vessel or the wherries after the wheels had been stopped. The steamer made still way through the water. Section (40.) of the Watermen's Company's bye-laws limited the number of barges coming along-side steam-vessels to two at any time but without success.¹⁹ There were

¹⁶ H.C., 1836 (557.), p. 3;

¹⁷ Ibid., p. 16;

¹⁸ H.C., 1831 (335.), p. 19;

¹⁹ *The Times*, September 12, 1831 and September 11, 1844;

much worse situations where the passengers had to balance on steep planks on board the steamer or the passenger wherry. Instead the watermen often hooked on to the steamers while their wheels were still making revolutions and gathered around them in incredible numbers, sometimes with 100 wherries, fighting for passengers and taking them violently from on board, separating them from their luggage, overloading the boats, which had only a few inches freeboard, with persons above the number they were allowed to carry, &c. On some occasions passengers had to balance over steep planks onto the steamer or into the wherry. The lives of passengers were seriously put at risk in a scramble for overcharged fares as the regular fares were too low. Accidents and numerous complaints about the conduct of watermen were unavoidable.²⁰

A proposed bye-law was signed on 20th June 1823 by the Clerk of the Mansion-house, Francis Hobler, regarding mainly the powers of the harbour-masters. Clause (5.) made compulsory that the name of the steam-vessel had to be painted on each paddle-box and bow, but also that a light shall be hung under the bow and another at the mast-head against a penalty for offences. A clause for steamers regarding the speed through the water between the east wing of Greenwich Hospital and the west entrance of the West India Docks (four knots with the tide and six knots against the tide) and from thence to London Bridge (one knot less respectively) was omitted from the code as well as one to observe the speed restriction when passing deep loaded barges and another forbidding overtaking above the west entrance of the West India Docks.²¹ This bye-law was not put into operation.

Entreaties made by the watermen to the masters of approaching steam-vessels were mostly not responded to. The watermen therefore turned to the Lord Mayor and requested him to intervene in this matter in his function as conservator of the River Thames. When they pointed him to the Gravesend steamer *The London* he had doubts if this particular vessel fell into his jurisdiction because the Watermen's Act which regulated the Company was passed before the appearance of steam-vessels on the River. But the conduct of steam-vessels seemed to have been already a subject of the Court of Aldermen's meetings. He ordered that minutes be made of the two cases

²⁰ *The Times*, August 10, 1822; July 2, 1824; September 12, 1831;

²¹ H.C., 1836 (557.), pp. App. 275-78;

brought forward and officers of the river conservators to stand by him on this subject.²²

The situation only became worse and the Lord Mayor and both harbour-masters received more complaints until the former, towards the end of the year and his election time, sent notices to the captains to reduce the speed of their vessels. The violation of this order would mean the accusation and declaration by the City of London of being a nuisance. When action was taken by the city solicitors²³ against these persons the order showed some effect. But not for long. As soon as the new Lord Mayor was elected this nuisance started all over again and, as *The Times* stressed, the masters made every effort to out-run each other, as the stage-coaches did, working their engines to the greatest speed.²⁴ An order of 30th March 1825 initiated by the harbour-masters to reduce the speed was issued again.²⁵ But it needed the death of Captain Pitcher, of the Honourable East India Company, drowned by the wash of the *Yorkshireman* on April 7, 1825 for another investigation to be held into this matter. But also the present Lord Mayor saw himself restricted to the jurisdiction of the City of London and could not go further than beyond the mentioned declaration and also considered submitting this matter to the Court of Aldermen.²⁶

This year, 1825, saw the construction of the St. Katherine Docks. Thereafter, a navigable, free channel of 400ft., later 300ft., at low water between the tiers of colliers moored along the embankments was demanded by Sir John Hall, Secretary of the St. Katherine's Dock Company, and others.²⁷

According to the evidence given by the Principal Harbour-master John Fisher before the Select Committee on Steam Navigation, 1831 there was a set of printed regulations authorised by the Lord Mayor in 1826 about slackening speed to three knots with the tide and four knots against it between Greenwich and Limehouse. Below Greenwich they seem to have been allowed five knots against the tide. His evidence was not very clear in this point. But this order was obeyed only during the

²² *The Times*, August 26, 1824;

²³ One of them was obviously Mr. William Lewis Newman who appeared later before the Committee on Steam Navigation, 1831, making a respective statement (p. 72); see chapter on Report on Steam Navigation, 1831;

²⁴ *The Times*, April 9, 1825;

²⁵ H.C., 1836 (557.), p. 174;

²⁶ *The Times*, April 9, 1825;

²⁷ H.C., 1836 (557.), p. 175;

FAVOURITE.—One of the very early excursion paddle steamers to Margate and on the Thames, being built in 1817, to replace a ship which had been destroyed by fire. She was built in a shipyard near the present side of Blackfriars Bridge, a vessel of 160 tons burthen with engines of 40 nominal horse power, by Messrs. Boulton & Watt. She lasted for quite a long time, and it was not until the middle of the century that she was relegated to pleasure trip traffic, which not only meant the ordinary holiday outing but also a convenient method of escaping from licensing restrictions.

(a) Starboard view under steam leaving Margate Pier together with the *Victory*. Aquatint 8 3/8 by 13 1/8. Inscribed:—"Margate Pier with Steam Packets."—"London, Published by E. Wallis, 42, Skinner St."

From: Parker and Bowen, 1928, pp. 111-12.



CLXVII.—"VICTORY" AND "FAVOURITE" AT MARGATE
The excursion traffic to Margate was a very early feature of British coastal shipping

presence of the harbour-master on the River, recognisable by his flag on his yacht, and was otherwise ignored.²⁸

A new Watermen's Act was passed on 14th June 1827 to summarise several Acts into one and to amend them for their regulation on the Thames between Windsor and Yantlet Creek.²⁹ Section (37.) provided that none but freemen shall "ply, or work or navigate, or cause to be worked or navigated, any Wherry, Lighter, or other Craft, upon the said River, from or to any Place or Places, or Ship or Vessel, within the Limits of this Act, for Hire or Gain" with certain exemptions. Section (57.) empowered the Court of Mayor and Aldermen to make rules and bye-laws for regulating the freemen and the "Boats, Vessels and other Craft to be rowed or worked within the Limits of this Act". Those rules had to be allowed by one or more judges and to be made public. The Watermen's Company was not allowed to penalise and convict anyone but freemen (Section (81.)). Section (106.) listed the kind of boats to be included into the bye-laws made by the Court of Mayor and Aldermen but was undefined about "and all other Lighters, Boats, and Vessels in the said River". This Act came into operation on 1st August 1827.³⁰

Soon afterwards, on August 14, *The Times* published a reminding article to the masters and commanders of the Thames steam-vessels strongly recommending the obedience of the rules and regulations regarding speed within four miles of London. Accidents between steamers and boats now happened on an almost daily basis because they took advantage of the lack of authority exercised. Seeking for passengers the steamers competed with speed and at reduced fares, without any light at the mast-head and therefore nearly colliding, as had occurred shortly before the date of this article. Out-port vessels raced as well. The newspaper feared that there had to happen more lamentable accidents before effectual steps were taken.

On December 19, 1827, the jury returned a verdict of manslaughter and fined Captain Savage 100l.,³¹ one of very few such verdicts. By far most of them were entered as accidental deaths.

²⁸ H.C., 1831 (335.), pp. 32-33;

²⁹ 7 & 8 Geo. IV., *Cap.* lxxv. An Act for the better Regulation of the Watermen and Lightermen on the River *Thames*, between *Yantlet Creek* and *Windsor*. [14th June 1827.];

³⁰ See the evidence given by Sir John Hall before the Select Committee on Steam Navigation, 1831;

³¹ *The Times*, December 20, 1827;

In pursuance of the last mentioned Act the Court of Lord Mayor and Aldermen made new bye-laws on 15th April 1828 of which section (42.) limited the speed between London Bridge and Limehouse to a rate of five knots but did not inflict a penalty for offences.³² Allowed by Baron Vaughan on July 10, 1828³³ this led to the question if steam-vessels were included within the said Act as the Act itself spoke only about "boat, wherry or other craft" or, similar, about "all other Lighters, Boats, and Vessels". In terms of penalties the Act spoke about "Ship or Vessel".

This question arose on August 25, 1828 in the Thames police-office and not for the first time. Already asked in connection with the first steam-boat on the Thames, the *Margery*, it was here initiated by the Gravesend steam-boat *Swiftsure* prosecuting the *Sophia Jane* for carrying passengers between London and Gravesend without being of the Watermen's Company. Section (37.) of the Watermen's Act prevented any person not being free of the Company to steer or cause to steer a vessel between Windsor and Yantlet Creek. This was an important issue as it would make the masters and owners of steam-vessels plying within these limits subject to be a freeman of the Watermen's Company and consequently subject to all regulations made in pursuance of this Act: to navigation, speed, mooring, &c. Mr. Ryland, Barrister for Messrs. Barnes & Co. who was the owner of the *Sophia Jane*, was of the opinion that vessels like her did not come under the meaning of the Act. The Lord Mayor thought otherwise. Mr. Broderip, Magistrate of the Thames police-office, adjourned the meeting until August 30 because of its importance to prepare for more evidence.³⁴

This next meeting was attended by even more persons connected with shipping interests, awaiting the decision by the magistrates. Mr. Hall, a wharfinger gave his understanding of the term 'other craft' in the Act as meaning only barges and lighters. The Act of Registry would support his opinion. Mr. Broderip thought the *Sophia Jane* to be under the Watermen's Act but wanted to come to a final conclusion only after further discussion with Captain Richbell, the sitting Magistrate of the Thames police-office. The meeting was adjourned once more.³⁵

³² H.L., 1837 & 1837-8 (563.), p. 7;

³³ Ibid.;

³⁴ *The Times*, August 26, 1828;

³⁵ Ibid., September 1, 1828;

The final meeting took place on 8th September. To settle this case Mr. Broderip adopted the term 'craft' as defined in Faulcener's *Marine Dictionary* of 1780: "a general name for all sorts of vessels employed to land or discharge merchant ships; or to carry along-side, or to return, the guns; such as lighters, barges, &c." Since the *Sophia Jane* was not employed in this way and Mr. Broderip, after studying the Act, could not justify a conviction of Mr. Barnes, he was discharged.³⁶ Nevertheless, this issue was still subject of discussion in 1838.³⁷

An improved paddle-wheel was put forward during this year, 1828, and several public trials were performed on the Thames. Before then the paddles were directly secured to the wheels and while leaving the water they took a great amount of it with them because their position become horizontal. This caused most of the dangerous undulation for small boats and barges. The new feathering wheel allowed the paddles dipping into and leaving the water in a more or less perpendicular manner, being not only more fuel efficient but also causing less swell. It was thought that this would be an improvement for the navigation of boats and barges but the opposite was the case.

The West India Docks Act, 1799 established with section (164.) the Navigation and Port of London Committee as managing body for the navigation of the Thames. It was made up of 45 members of which 15 were Aldermen and 30 were Common Councilmen, each ward sending one member into the Committee for four years on a rotatory basis according to waiting lists, that is to say not selected for their fitness and knowledge towards the port, the navigation of the River, or shipping affairs in general. These members were mainly shopkeepers and perfectly unconnected with the subject. A quarter of the members changed every year. This mode of nomination ensured that there were no members with any knowledge of any maritime aspects, unless by accident, and made any continuity impossible.³⁸ Four years were not enough to achieve any sufficient knowledge and efficiency. This

³⁶ *The Times*, September 9, 1828;

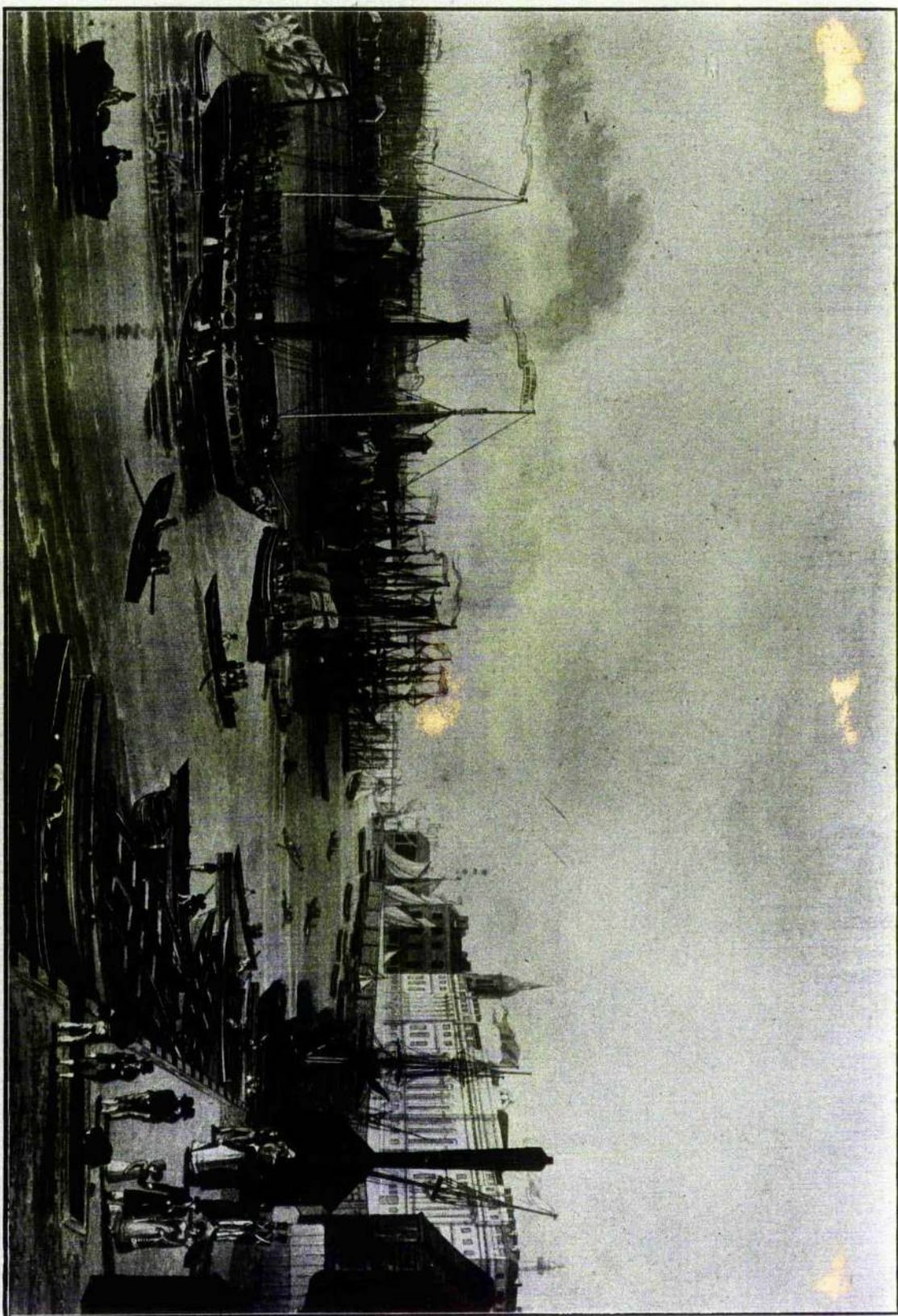
³⁷ See chapter on Thames Navigation Before 1840;

³⁸ A list of Committee members and their occupation for the year 1846, the mode of nomination remained unchanged, was reprinted in *The Nautical Magazine and Naval Chronicle, For 1846*, (Vol. XI), p. 219, from the *Nautical Standard and Steam Navigation Gazette*. These members included: 1 pavier, 1 grocer, the churchwarden of Walbrook, 1 skin broker, 1 tea dealer, 1 printseller, 1 surgical instrument-maker, 1 plate glass factor, 1 city measurer of woolen cloth, 1 orange merchant, 1 oilman, 1 baker, 1 essence of spruce merchant, 1 painter and glazier, 2 auctioneers, 1 engraver, 3 attorneys, 2 meat salesmen, 1 hatter, 1 leather seller, 3 stationers, 1 hosier, 1 undertaker, 1 iron merchant, 1 packer, 1 bookseller, 1 umbrella seller, 1 glass merchant, 1 chronometer-maker, 1 warehouseman, 1 druggist, 1 wine merchant, 1 bricklayer, 1 coffee dealer;

LONDON ENGINEER.—Early paddle steamer, the crack passenger packet of her day on the Thames, built of wood in 1818, by Brent, of Rotherhithe, and engined by Messrs. Maudslay, Son & Field at Lambeth. Her dimensions were 120 feet length, 24 feet breadth and 5 feet draught, which gave a tonnage of 315. The chief peculiarity of the *London Engineer* was that her paddles were built in the centre of the hull, leaving the sides quite clear. They were driven by an engine on either side, of a total horse power of 120, which was then remarkable. The vessel ran on the service between London and Margate and was a most popular ship.

(a) Starboard quarter view steaming up the Thames. Aquatint 8 1/8 by 12 1/4. Inscribed:—"Drawn and Engraved by Robt. Havell & Son." (Title also in French to right.) "A View of London Bridge, and Custom House, with the Margate Steam Yachts."—"London, Published July 6th, 1820, by Messrs. Colnaghi & Co., Cockspur Street."

From: Parker and Bowen, 1928, p. 182.



XCV—LONDON ENGINEER

One of the most popular of the early Thames steamers. It will be noted that the vested interests of the watermen insisted on wherries being employed for the embarkation of the passengers

knowledge was gained only, due to this mode of nomination, from the advice, knowledge, and experience of the harbour-masters who in fact became the heads of the Committee. It met once early in the month unless special occasions required additional meetings and were supposed to order and instruct the harbour-masters regarding their day to day work who themselves had to submit periodical returns about the number of ships cleared in and out, the state of the port, and every incident the Committee set upon. The Committee's amount of work was so pressing that nearly every operation was transferred to a sub-committee whose members were drawn from one third of the present members of the Navigation Committee for the current month only and therefore changed again in each following month. They were assisted by the harbour-masters, water-bailiff, surveyor, and clerk of the works. The sub-committee reported their proceedings irregularly. The chairman should be the Lord Mayor or an Alderman but their other public duties did hardly allow them the time to take this position. Therefore the oldest Commoner who was not on any other committee but in his last year served as chairman. The Lord Mayor nominated the harbour-masters. There was no real control possible over them. Only after complaints of neglect were proved and reported to the Trinity House could the Elder Brethren instruct the Lord Mayor to dismiss the harbour-masters who had then to do so. None of them had such power on their own. This difficult procedure brought the harbour-masters who, by enactment, were nominated for life, the accusation of abusing their status and power, enforcing the bye-laws only when it was suitable and convenient, and of being the real directors of the port services rather than its servants. Once dismissed they could not be employed again as harbour-master. This harsh punishment resulted in complaints not being made. In one case the Port Committee even refused to investigate complaints made by Sir John Hall.

The Harbour-masters Act of 1829³⁹ reduced the number of harbour-masters from five to three (clause (II.)) which were to be appointed by the Lord Mayor who also had the power to remove or suspend them (III.). But this did not affect those named before the passing of this Act. The powers of the harbour-masters included "to direct the entering, mooring, unmooring, moving, and removing of all Ships and other

³⁹ 10 Geo. IV., *Cap.* cxxiv. An Act for altering and amending the Powers of an Act of the Thirty-ninth Year of the Reign of King George the Third, for rendering more commodious and for better regulating the Port of *London*. [19th June 1829.];

Vessels, Steam Boats, Lighters, and Craft, except those of the said Corporation of the Trinity House, coming into, lying, or being in the said Port of *London*" (IV.)-(VII.). It also created the position of a principal or super-intending fourth harbour-master with authority to control the other three, requiring obedience to the bye-laws and his independently made orders (XI.). Before they resisted to do so on the ground that they were impracticable.

From 29th September 1829 the Court of Common Council was furnished with a new code of power to establish bye-laws, orders, regulations, &c. concerning the duties of harbour-masters, also of legal persons, engineers, surveyors, lightermen, and others, "and for the more safe and convenient navigating, placing, mooring, unmooring, and removing of Ships and other Vessels on the River *Thames* in and near the said Port, (except as herein-after excepted,) and for the better governing and regulating of all Masters of Vessels, Pilots, Lightermen, and others within the said Port (except as before excepted,)" (XIII.). These bye-laws, &c. had to be approved by the Trinity House (XIV.) before issuing them to the judges for final approval.⁴⁰

The execution of the harbour service was so unsatisfactory that in 1827 and 1828 an inquiry was held by the Port Committee⁴¹ which led in August 1829 the then present Mayor Thompson to order a notice. It was despatched to the owners, masters, and all persons navigating steam-vessels on the River *Thames*, that the harbour-masters of the Port of London shall enforce the reduction of speed between Greenwich Hospital and the west entrance of the West India Docks and even further reduction between there and their moorings up river according to going with or against the tide. The measure was the speed through the water opposed to that over the ground. Overtaking each other above West India Docks was also forbidden. A strong light had to be shown wherever it seemed to be most convenient. Another regulation by the Port of London Committee set up the width of the passage through the Upper and Lower Pool to be 300ft. and regulated the manner of mooring barges. To ensure the proper obedience to these two orders from and after September 29, 1829 the City of London decided to elect in future only harbour-masters which served before in the Royal Navy or East India Company.⁴²

⁴⁰ For the whole section: H.C., 1836 (557.), pp. 10-11, 41-42, 65-69, 102;

⁴¹ Ibid., p. 12;

⁴² *The Times*, August 21, 1829;

In the neighbouring column to these orders appeared an article reporting a widely attended public meeting of the inhabitants of Ramsgate and Margate at Margate Town-hall for discussing a more efficient steam communication between those places and the metropolis. Besides the point that "the passengers, owing to the limited number of vessels starting, being packed more like negroes in a slave-ship than anything else", they thought time occupied for the voyage between Margate and London as being far too long, as they were forced to take three meals on board and the vessels became floating hotels. A subscription of 2,300*l.* was then entered into by an appointed committee for establishing additional, and speedier (!), steam-boats between Margate and London.

New orders of the beginning of October 1829 regulated the day and night duties of the three harbour-masters, a free and unobstructed channel of not less than 300ft., the placing of buoys to mark the free channel, and concerned the mooring and moving of vessels. All of them were approved by the shipowners.⁴³

On a meeting of the Court of Conservancy on June 14, 1831 the then Town Clerk Henry Woodthorpe, Esq., directed by the Lord Mayor, addressed the meeting with his remark that numerous complaints had been made in the past, that the steamers proceeded in a reckless manner through crowded parts of the River, so observed by the members of the jury. The advantages of steam navigation, the manoeuvrability, did not leave the commanders of such vessels a single excuse. The River for being His Majesty's Highway enabled the coroners and jury to accuse the persons in question of manslaughter and stressed the strictness the jury would perform on this subject. The Lord Mayor added that the magistrates did everything possible in their power to bring these persons before the court, the former were blamed by some newspapers for not doing so, and that the present Act of Parliament would be replaced by a new one if it would prove to be necessary.⁴⁴

Another meeting was held a month later on July 15, 1831 and the jury presented the Lord Mayor three cases of misconduct of the *Venus* and two other vessels on the 7th inst. alone. Measures against the commanders were obviously not taken but the jury hoped for more efficient ones and the Lord Mayor felt the pressure of having to respond to the complaints of the press which shewed no effect on the

⁴³ *The Times*, October 9, 1929;

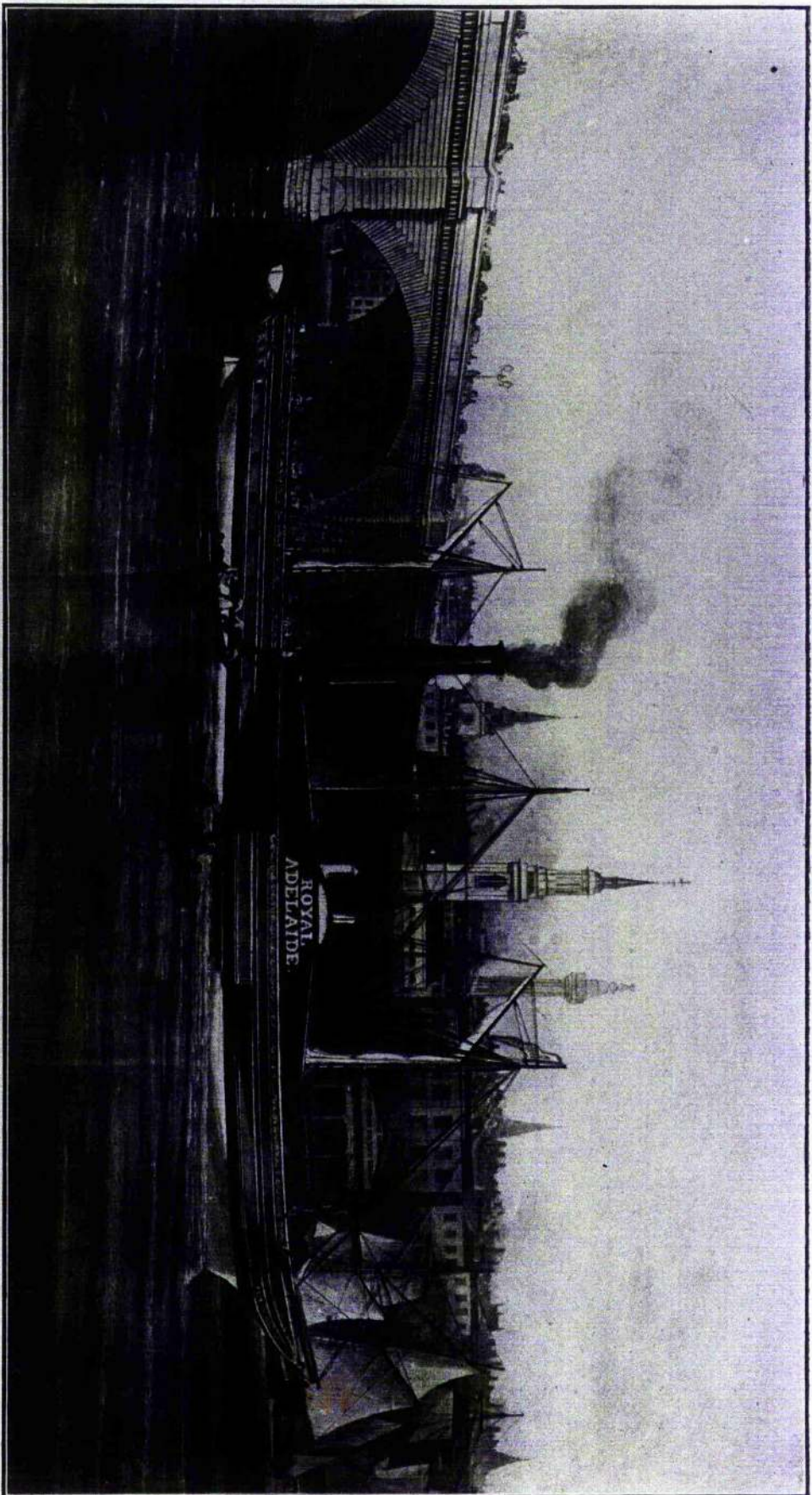
⁴⁴ *Ibid.*, June 16, 1831;

ROYAL ADELAIDE.—Early Thames passenger paddle steamer, running between Margate and London. The vessel was built in 1830 by Messrs. T. Snooks & Sons, with engines by Messrs. J. Seaward & Co.

[...]

- (b) Starboard view off the wharf of the New Steam Packet Co. London Bridge. Aquatint 11 1/4 by 21. Inscribed:—"To the Ladies of London and the Isle of Thanet, Patronesses of the Margate and London Steam Packet Company. This Plate of the *Royal Adelaide* Steam Packet, belonging to that Company is respectfully inscribed by their obedient Servant W. Timms."—"Painted and Engd. by W. Timms, and Pubd. March 1st, 1831 at the Atlas Office. No. 10 High St., Margate." "This Packet was built by T. Snooks & Sons."—"The Engines by J. Seaward & Co."

From: Parker and Bowen, 1928, p. 256.



CXLIV—ROYAL ADELAIDE
Early Margate steamer built in 1830, showing the peculiar fiddley over the engine room that
was fitted into several steamers in that day

commanders. The City Solicitor pointed out the crucial fact that the vessel's recommendation to passengers was the speed and the short journey time. The passengers also did not like seeing another vessel passing them but in consequence of racing them through the River and the swell caused they did not dare to go out on the River at all but in the very large steam-vessels.⁴⁵ Ferrying people across the River or shorter distances up and down-river was the entire income of the wherrymen and their families which soon had to live upon the parish bounty if this situation would carry on. To reduce the amount of undulation, to avoid the contact of the two Margate steamers, and to enable them racing bow to bow *The Times* suggested their setting off from London with half an hour difference.⁴⁶

More cases of misconduct, more inquests and a leading article in *The Times* followed. In general the number of cases reported by *The Times* increased to more than weekly reports, sometimes to daily articles. One case concerned the Government packet *Pluto*. On July 25, 1831 she ran over a sandbarge and drowned three persons at the lower end of Halfway-Reach on a "speed trial" without a look-out while being for the first time on the Thames. The following day she nearly ran over the *Harlequin* with, unfortunate for the *Pluto*, Members of Parliament and East India Directors on board, who immediately signed a memorial against the captain of the *Pluto*. The Lords of the Admiralty ordered an investigation and the strongest punishment for manslaughter: deportation into British colonies. It took the jury two hours to decide their verdict of manslaughter against the pilot Richard Powell. He was immediately taken into custody.⁴⁷

A small but leading article appeared in *The Times* of July 30, 1831 demanding efficient laws and verdicts of manslaughter if there was any hint of carelessness or incapacity. The controllability of steam-boats would leave the masters of steam-boats only very few excuses for having done damage. The correspondent thought it to be necessary to assure the reader that the newspaper was not against the invention of steam power.⁴⁸

⁴⁵ Harbour-master John Fisher in the Report on Steam Navigation, 1831: Q. 534. At what speed do you think they ought to run to stem the tide, so as to be able to satisfy the passengers on board ?--I believe the passengers that go on a steam-boat are never satisfied unless they go as fast as they can;

⁴⁶ *The Times*, July 19, 1831;

⁴⁷ *Ibid.*, August 4, 1831;

⁴⁸ *Ibid.*, July 30, 1831;

On the last day of July another five persons were drowned by upsetting a boat through the swell of the Government steamer *Smith Hoy*. Verdict: accidental death.⁴⁹

An attempt to regulate steam-vessels on the Thames by enactment rather than by bye-laws was made by Alderman Wood. He brought forward a Bill printed on 11th August 1831⁵⁰ which contained the same speed limits, light regulation, and passing precaution as laid down in the order of the Lord Mayor of August 1829 but in addition it introduced penalties of up to 100*l.* for exceeding the regulated speed limit and exceeding a speed limit (which had to be discussed) when passing small boats and barges, up to 20*l.* for failing to carry the said light, and up to 20*l.* for overtaking at a greater rate than allowed as means to prevent racing. Further clauses regulated the number of passengers per ton, compensations of up to 50*l.* for damages done to boats and barges and empowered the Court of Aldermen to make such bye-laws with the approval of one or more judges.

The Bill was read for the first time on August 19, 1831. A petition from the Corporation of Gravesend and another from the directors of the Steamboat Company opposing the Bill, for obvious reasons, were presented. Mr. Maberly declared the Bill as ridiculous and feared next the regulation of the speed of coaches and the rate at which men were allowed to walk through the streets. Also M.P. D.W. Harvey thought it a ridiculous measure but agreed on heftier penalties than the present. Mr. Hume recommended the same proceedings as taken for the steam navigation on the Clyde: there a similar Bill was withdrawn and replaced by local regulations of the River Commissioners. He thought the power of the Corporation of London to be sufficient to draw up regulations accordingly. Alderman Wood made clear that this was not the case. Prosecutions sometimes failed in spite of the expenses involved, another two were still pending. Others supported it for humanitarian reasons. At the end the speakers were equally divided about the Bill.⁵¹

A meeting of the officials (masters, wardens, assistants) of the Watermen's Company on August 21, 1831 came, after some discussion, to the conclusion to support the Bill but recommended a number of alterations and improvements. A petition was already signed by a great number of free watermen and was still waiting

⁴⁹ *The Times*, August 4, 1831;

⁵⁰ 2 Will. IV., Bill, 11 August 1831 (164.);

⁵¹ *Hansard*, Third Series, Vol. VI, col. 289-92;

for more signatures. Another petition of shipowners, masters of crafts, and others not being bodies of the Company was about to be launched.⁵²

Moving for a second reading on August 29, 1831 Alderman Wood got only strong opposing remarks. None of the supporting M.P.s were obviously present or were reported. Mr. Wilkes said that a first reading did not secure a second reading but that this Bill should be discussed, and Mr. Bernal even suggested that Alderman Wood tried to pass the Bill without notice being taken. Unfortunately Alderman Wood caved in and did not insist on his right to have a second reading on that day. His question to the Ministers if they supported the Bill was not answered.⁵³

Five days later a petition of bargemen was presented to the House wishing that the Bill became law. But the original Bill was not discussed by Parliament. Instead debate switched to the loss of the *Rothsay Castle*, to general regulations for both steam and sailing-vessels and finally to the seaworthiness of steam-boats.⁵⁴

On September 6, 1831 Colonel Charles Sibthorp moved for a Select Committee for inquiring into accidents in steam-vessels. Even this measure was opposed. But finally a committee was appointed by the House with Colonel Sibthorp as Chairman.⁵⁵

A final discussion on September 20 (the Select Committee was already taking minutes) revealed again the opposition to any legislation at all by some M.P.s. A petition from Beaumaris to introduce a law to prevent vessels like the *Rothsay Castle* from going to sea was put before the House. They thought that the public should be left to take care of itself. But Mr. O'Connell of Kerry referred to two privately owned companies with steam-vessels between Liverpool and Dublin in excellent condition and to the Post-office steam-packet line between Dublin and Holyhead as being "deplorably bad" because of lack of competition. Henry Grattan supported the Bill on the ground of the account of one of the former mates of the *Rothsay Castle*: this vessel was withdrawn four years before from sea service because of its unseaworthiness. The next logical step forward was done by C.W. Wynn who said that there was no reason why this proposed law should be limited only to steamers between Liverpool

⁵² *The Times*, August 22, 1831;

⁵³ *Hansard*, Third Series, Vol. VI, col. 772-73;

⁵⁴ *Ibid.*, col. 1063-64;

⁵⁵ *Ibid.*, col. 1201-02;

and Dublin. It should include those packets between Liverpool and New York as well. John Campbell was in favour of prosecuting for manslaughter in cases of accidents like the latest one but thought that the present legislature was sufficient. The petition was then referred to the Committee.⁵⁶

⁵⁶ *Hansard*, Third Series, Vol. VII, col. 261-63;

THE REPORT FROM THE SELECT COMMITTEE ON STEAM NAVIGATION, 1831 (335.).

On September 6, 1831 Colonel Sibthorp, well known as an ultra-Tory,¹ moved in the House of Commons for appointing a Select Committee to inquire into the prevention of steam-boat accidents. His request was initiated by the loss of the *Rothsay Castle* on 17th August 1831, a passenger vessel built for river service but which went out to sea and was lost with 100 lives. Such Committee was appointed to consist of 16 members: with Colonel Sibthorp as Chairman and Aldermen Wood as one of their members. They took minutes of evidence from September 15 to October 7 on 12 days calling 50 witnesses: watermen and lightermen, harbour-masters, captains, &c. The subjects of inquiry were the steam engine itself, ships' lights, speed of steam-vessels and its limitation, the wash of steam-boats, accidents to barges and wherries, state of the Pool, surveying of boilers, build and strength of steam-vessels, general survey of steamers, ships' boats for passenger steamers, &c.

William Brown, Waterman in the Lower Pool, described the general state of the Pool, several collisions between barges and steam-vessels, and witnessed the latter passing within from 20-30ft. from the lighters and barges with a speed of ten or eleven knots.² He saw up to 100 vessels at any one time between London Bridge and Cuckold's Point with a fairway never more than 120ft. wide.³ It was not only the swell coming directly from the steamer which sank the barges but also that rebounding from the banks.⁴ The greatest swell occurred when several, sometimes four, steamers followed close to each other, keeping up a continuous swell. To avoid more accidents he would limit their speed between London Bridge and Cuckold's Point but was unsure about the rate.⁵ He believed it to be the rule of the river that small vessels should keep out of the way of larger ones. But it was also a rule that steamers get out of the way of other vessels when they come closer than 100 yards.⁶

¹ Prouty, 1957, p. 61;

² H.C., 1831 (335.), p. 46;

³ Ibid., p. 52;

⁴ Ibid., p. 50;

⁵ Ibid., p. 52;

⁶ Ibid., p. 48;

Another Lighterman, Thomas Lucy, stated that, because of less speed, these accidents had not occurred with sailing-vessels. He also referred to the higher amount of swell caused by steamers when following close together.⁷

After a long statement given about several accidents which occurred to the Trinity House barges by steamers William Honeyman, Superintendent to their barges, submitted a list of damages done to them by sailing-vessels and by steamers. There it appeared that from March 1826 to September 1831 31 accidents were registered on account of steam-vessels but 100 accidents were due to sailing-vessels. This gave a somewhat different picture from the accounts of the watermen and lightermen. But the Superintendent also confirmed the general view that the accidents were due to the carelessness of the helmsman,⁸ that steamers were racing, and went through the Pool at too great a speed.⁹ Such should be limited above Gravesend and steamers should not follow within a distance of less than half a mile.¹⁰

William Lewis Newman, Solicitor of the Corporation of London, became aware of the complaints about the speed of steamers in 1823 or 1824.¹¹ He despatched a public notice to the owners and masters of steam-vessels in 1824 and believed that they did obey them for he heard of no further complaints until 1829 (was he ill-informed ?) when he renewed the notice. But this was ignored by all of them but one. The continuance and increase of the number of complaints caused Mr. Newman to place persons on those steamers who, in 1831, collected a great deal of evidence sufficient for prosecution as ordered by the chief magistrate. But it seemed from his evidence that he did not prosecute any of them yet because it involved several acts of the common law regarding offences on a King's highway. It remained a question if the Act of 1827¹² regulating the Watermen's Company did apply to persons not being of the Watermen's Company, which were those who plied beyond their jurisdiction from Windsor to Yantlet Creek, for example to Ramsgate

⁷ H.C., 1831 (335.), p. 23;

⁸ Ibid., p. 38;

⁹ Ibid., p. 39;

¹⁰ Ibid., p. 40;

¹¹ Ibid., p. 71;

¹² 7 & 8 Geo. IV., *Cap.* lxxv. An Act for the better Regulation of the Watermen and Lightermen on the River *Thames*, between *Yantlet Creek* and *Windsor*. [14th June 1827.];

and Margate. Mr. Newman's opinion was that these vessels did not come under the Act.¹³

But the issue was wider. The principal question was if the Company was allowed to make bye-laws which enabled them to punish those who went beyond the said limits. The case was thus: the Act of Parliament allowed the watermen's bye-laws to be applicable to freemen only. But if a non-freeman violated a bye-law the Act itself would bear upon him which said that none but freeman shall ply on the river. If the non-freeman would be under the bye-law it would be a question if the bye-law was sufficient. The only solution would be to pass an Act of Parliament which was applicable to every steamer and overruled the watermen's bye-laws. Racing and following close to each other should also be forbidden by law.

Kennet Beauchamp Martin, Commander of *The City of London* steam-packet and Harbour-master of Ramsgate during the winter, thought such an Act would be an improvement provided that the speed limit did not go below six knots but in general would keep the steam-vessels out of the Pool.¹⁴

As to lights Joseph Beardmore, Engineer "to the Company", spoke about three or four lights which were exhibited at the mast-head, bowsprit, and paddle-boxes of their vessels.¹⁵ Captain Martin displayed one light at the mast-head and one at each paddle-box. The mast-head light was closed at the back in order not to blind the look-out. He was ordered by the owner of his steamer to carry lights but it was left to him where to fix them.¹⁶ The suggestion by the Committee members of having three horizontal lights on the yard-arm of vessels going down-river and three perpendicular lights for vessels going up-river, and accordingly for going north and south along the coast, would be, in his opinion, useful, in fact the form of lights was of no importance to him as long as the regulation was generally recognised and adopted.¹⁷

Also John Fisher, principal Harbour-master of the Port of London, was in favour of a regulation for lights. Some steamers already carried a light at the bows which told if

¹³ H.C., 1831 (335.), p. 72; it was the bye-law of 15th April 1828, clause (42.); see chapter on Thames Navigation Before 1832;

¹⁴ Ibid., p. 73; for further discussion of this subject see chapter on Thames Navigation Before 1839;

¹⁵ Ibid., p. 11;

¹⁶ Ibid., p. 17;

¹⁷ Ibid., p. 20;

they were going the same direction or were bearing on them because it would be either obstructed by the hull or show clearly.¹⁸

The exhibition of lights was entirely left to the convenience of owners and masters of steam-vessels and to the willingness of the former to pay expenses for oil. The lack of having at least one recognised rule for steamers under way and another one for vessels at anchor led to incredible confusion. A bright all-round light hanging in the foremast stays, on the yard-arm, or mounted at the mast-head gave no indication at all of the direction the vessel was going. It shewed only that there was one in the vicinity. The lighted deck or superstructure might have told something if the light was strong enough. Hanging the light or lights under the bows or under the end of the bowsprit did give some kind of information to other vessels because it was invisible from the quarters of that particular vessel but their position in front of the look-out stationed in the bow blinded his view. The system of lights as suggested by the Commissioners with reference to the direction the vessel was going (up or down-river and going north or south along the coast) rather than to her nature, her size, the action she was going to take, &c. was rather strange for today's measures but was a relatively well thought-out attempt to bring some order and system into the main traffic routes. But it did not affect the busy English Channel and open waters.

There was only one remark concerning the mode of two steam-vessels passing each other in the Thames. It was made by Captain Martin of *The City of London* steamer, describing it as a "rule" that the steamers sailing against the tide kept to that side of the river where the tide was weakest. The other vessel went with the strength of the tide and passed the oncoming vessel at its open side. Whereby the one vessel constantly changed the side of the river. This would be the rule during daylight, there was no such rule for the night and the masters or commanders were therefore completely dependent on lights.¹⁹

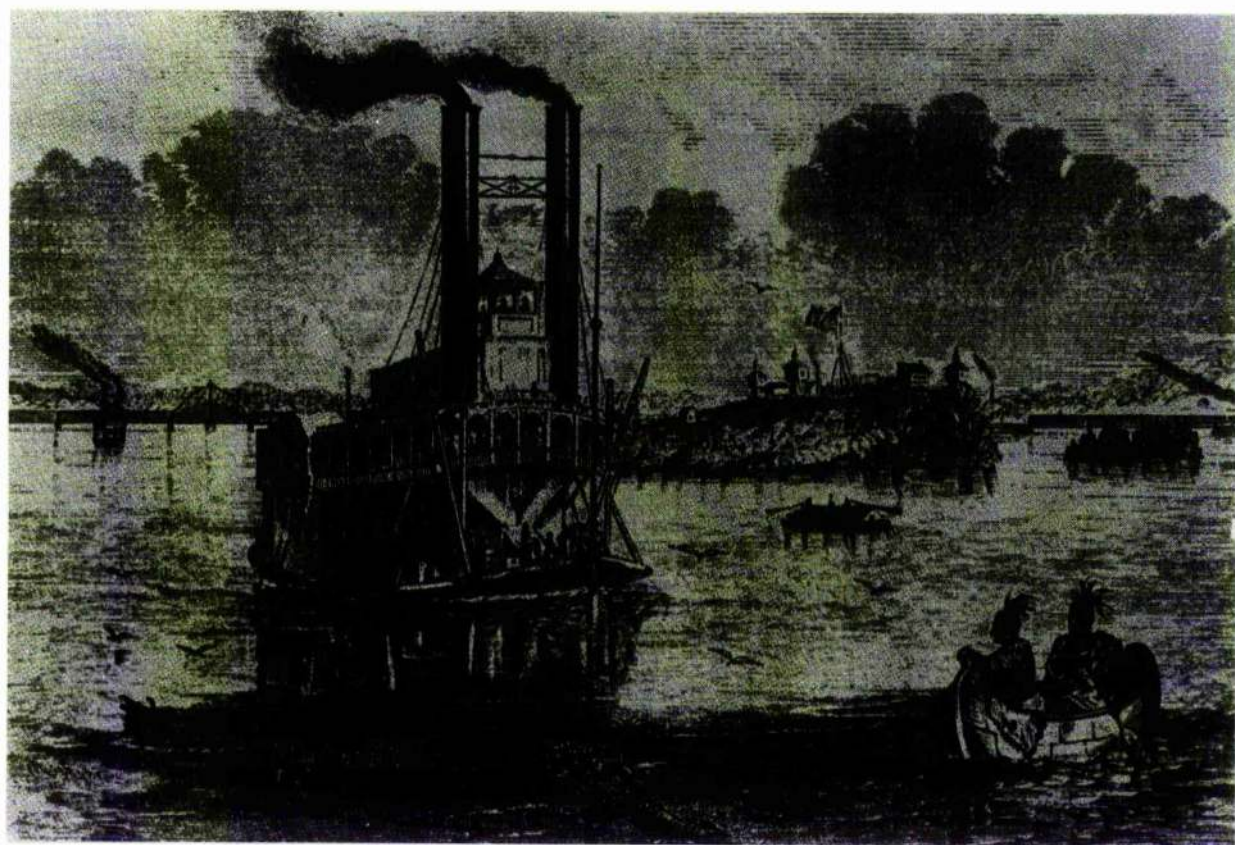
Captain Basil Hall, R.N., was examined particularly about the way American steam-vessels were steered. Referring to the build especially of river steamers on the Mississippi he described the wheel-house as sitting high above the waterline and therefore as far forward as possible in order to have a good view before and around the bow. For ease of detecting the vessel answering its helm a little bowsprit with a

¹⁸ H.C., 1831 (335.), p. 32;

¹⁹ Ibid., p. 20;

An 1858 wood engraving of a Mississippi steamer as described by Captain Basil Hall, R.N., in the Report on Steam Navigation. The spar with globe can clearly be seen at the bow of the vessel.

Engraving from: Bass, 1988, p. 194.



mast and spar or globe was erected at the stem.²⁰ He recommended this system for the English river steamers but it would need a scaffolding on the fo'c'sle to bring the helmsman high up over the bow. For sea purposes the usual position aft could be occupied.²¹ There should be also another system adopted here which was already introduced in steamers on the River Tay sailing between Perth and Dundee. The engine was directly controlled by means of an instrument formed of a dial and handle invented by Messrs. Carmichael of Dundee. The loss of time through misunderstanding commands, or reacting slowly to them would be so avoided.²² Asked for a way to avoid accidents in the Pool Mr. Hall could not recollect any accidents of steam-boats which could be prevented by legislation.²³ He objected to the lighting system as suggested by the Committee because he saw accidents happen due to showing more than one light.²⁴

The inventor of a revolving light, John Lane Higgins, was also examined. Having described it²⁵ he thought of using it as an indicator for speed of steam-vessels by letting it revolve in the same rate as the wheels.²⁶ It would also tell other boats coming along-side if the wheels were stopped when they could not be seen in the dark. He had already shown this engine to the Elder Brethren of the Trinity House, London who were unable to enforce its adoption. The harbour-masters and the only captain asked supported the idea. The revolving light was not supposed to give an indication of the course to other vessels. The intention was to give an indication of motion which cannot be achieved with stationary lights.²⁷

But a vessel moving round another vessel's bow so equipped from right a-head into a position abeam would see the light's full circle changing into an ellipsoid and finally to an up and down movement and therewith gave some indication of its relative course and position.

²⁰ H.C., 1831 (335.), p. 26;

²¹ This arrangement was also discussed in several articles and letters to the editor of *The Times*: for example: August 23, 1831; December 9, December 15, December 26, 1835, September 13, 1837;

²² *Ibid.*, p. 28;

²³ *Ibid.*, p. 29;

²⁴ *Ibid.*, p. 31;

²⁵ See chapter on Modes of Exhibiting Lights Before 1841;

²⁶ To the subject of revolutions of the wheel as measure for speed see chapter on Report on Port of London, 1836: Sir John Hall's and Captain Frederick Bullock's statements;

²⁷ H.C., 1831 (335.), pp. 61-62;

An important statement towards the fining of steamer's commanders was made by Sir John Hall, Secretary of St. Katherine's Dock Company. Although the Harbour-masters Act of 1829²⁸ was also passed (clause (IV.)) "to direct the entering, mooring, unmooring, moving, and removing of all Ships and other Vessels, Steam Boats, Lighters, and Craft, except those of the said Corporation of the Trinity House", it was often impossible for the harbour-masters to enforce the bye-laws of August 1829. The fine of up to 5*l.* for every hour refusing to obey their orders shall be recovered from the owner (clause (IX.)). Other persons in charge or command of the ship were not mentioned but the owner might not be in reach of the Act. Clause (XIII.) shall regulate, beside other things, "the more safe and convenient navigating, placing, mooring, unmooring, and removing of Ships and other Vessels on the River *Thames* in and near the said Port, . . . and for the better governing and regulating of all Masters of Vessels, Pilots, Lightermen, and others within the said Port" The words 'Steam Boats' were here omitted. This should be subject of an amendment to the Act.²⁹

Sir John Hall made another point by referring to his system of mooring vessels in tiers, a proposal which he submitted to the Corporation of the City of London in 1826 and the Society for the Encouragement of Arts, &c. during the session 1828-29: two parallel mooring chains, each 350ft. long, with bridles and buoys every 50ft. were laid on the river bed 220ft. apart. To each pair of opposing boys were moored two vessels as a pair, head to stern, the ropes of both ends of a different length. Each pair of vessels was set in that manner that every vessel was left with at least two thirds of its length of one side open to the river for loading and unloading. 14 vessels of an average size of 250 register tons could be so moored with a considerable amount of space saved. The Corporation of London was in favour of this suggestion but its Navigation Committee was mainly composed of incompetent persons without any practical knowledge of shipping or the River Thames.³⁰

Sir John Hall was further of the opinion that the speed of steam-vessels should be regulated after they passed Greenwich, The Lord Mayor put out such proclamation on

²⁸ 10 Geo. IV., *Cap.* cxxiv. An Act for altering and amending the Powers of an Act of the Thirty-ninth Year of the Reign of King *George* the Third, for rendering more commodious and for better regulating the Port of *London*. [19th June 1829.];

²⁹ H.C., 1831 (335.), p. 112;

³⁰ *Ibid.*, p. 113; see chapter on Thames Navigation Before 1832;

24th June 1830 but had no power to enforce it.³¹ As regards passing vessels he recommended that the Legislative should not interfere but that there should be a mutual understanding between the masters and owners that the vessels going with the tide should keep in the strength of the tide while those going against it should hug the shore to keep in the eddies, also that accidents might be prevented by both porting or starboarding the helm instead of one porting and the other starboarding it.³²

The Select Committee agreed the text of their Report of just three and one half pages on October 14, 1831. The members had to find, as they thought, a compromise between "on the one hand, not to check, by Legislative interference, the progress of Improvement in the application of the vast Power of Steam to Naval Purposes, as, on the other hand, to afford Protection to the Lives and Property of His Majesty's Subjects, and to ensure a due regard to the security and protection of all public and private interests". They came finally to the conclusion that certain regulations should be made. Referring to two recent major steam-vessel accidents they were nevertheless of the opinion that the number of fatal accidents was comparatively low to those with sailing-vessels.³³

The Committee summed up the evidence into five statements: that the now daily personnel risk for people in small boats was caused by the rapidity of passing of steamers through the Pool; that every reasonable precaution should be adopted by steamers passing small craft closer than necessary; that sea-going as well as river-going passenger steamers seemed not to be built with sufficient strength of scantling; that there was no fixed rule for night signals for steamers; they should be so distinguished to give other vessels timely notice of their approach; that the starting of several steamers from the same point at the same time causes great inconvenience to small craft due to undulation;³⁴

To overcome these points the Committee made nine suggestions: (1.) to regulate the speed between London Bridge and the Stairs of H.M. Victualling-yard at Deptford through the revolutions of the paddle-wheel; (2.) that it shall be enacted that the number of revolutions of the wheel shall be halved between London Bridge and

³¹ H.C., 1831 (335.); for reasons see above;

³² Ibid., p. 114;

³³ Ibid., p. 3;

³⁴ Ibid., pp. 3-4;

Deptford when going with the tide or in slack water and reduced to two thirds when going against the tide, the measure being the average performance of the wheel at full speed; this shall be registered at the Commissioners of Customs of the port of registry and painted on a prominent part of the vessel; for vessels navigating the Thames an index shall be mounted on the deck connected to the engine for showing the revolutions per minute of the wheel; (3.) that sea-going and river-going passenger steam-vessels shall be regularly surveyed and examined for sea-worthiness, scantling, and fitting and afterwards licensed; (4.) that the licences shall be granted for one year only and be renewed after any accident had occurred; (5.) that the number of passengers per registered ton shall be licensed with two for sea-going steam-vessels and with three for river-going steamers; tons of cargo and number of horses and cattle shall be taken into account; (6.) that every steam-vessel, if navigating rivers or coastwise, shall carry at night two horizontal lights at least eight feet apart and twelve feet above the deck and one light under the bowsprit or at the stem; (7.) that every sea-going steam-vessel shall carry a gun or swivel and a bell for making signals; (8.) that a minimum defined number of small-boats shall be carried depending on tonnage and the voyage she is intended for: one boat for river voyages, two for sea-going voyages of less than 100 miles and three boats for voyages of more than 100 miles at sea respectively; (9.) that the name of the captain, the number of engineers, crew, licensed passengers, and boats shall be painted in a prominent position on deck.³⁵

The Committee thought it necessary to stress that such legislation would not appear to be oppressive against the proprietors of steam-vessels but could secure the confidence of the public. It drew attention to further points of the evidence but did not recommend legislation upon these matters: (1.) the advantages of building steam-vessels' hulls after Mr. Seppings' method;³⁶ (2.) feathering wheels after Mr. Morgan's, Mr. Perkin's, or other's principle were less likely to injure small craft while passing close to them; (3.) the advantages of having a platform and steering-wheel in the fore part of the vessel as in American river steamers; (4.) that two steam-

³⁵ H.C., 1831 (335.), pp. 4-5;

³⁶ His method of strengthening the inside of the Ship of War wooden hulls with diagonal iron riders was first tried out by Sir Robert Seppings, Master Shipwright in Chatham, in 1811 and generally adopted by the Admiralty in 1831. This method gave the wooden hulls much more rigidity as hulls of parallel and rectangularly joined timbers are easily worked loose (Kemp, P., 1988 (Reprint 1993), p. 772; Stewart, 1982, p. 4);

vessels when finding themselves 'stem on' should both alter their helms to starboard, but when not directly 'stem on' the helm should be altered only so far as it was necessary for sheering free of each other; (5.) that wherries, now also occupied in passenger conveyance, were built lighter and shallower than they used to be, and were therefore not able to withstand the affects of steam-vessels or any other trials; and that the regulations and directions given concerning the fairway through the Thames near London were not obeyed and therefore the authorities of the City of London should pay attention to this matter.³⁷

The Committee thought the accounts of a survivor of the *Rothsay Castle* supported the necessity of having such legislation. The House should pay attention to the practical information given in the evidence.³⁸

The sixth of the nine suggestions was different from that which the Committee made during the taking of evidence. Especially the addition of a bow light in an oblique triangle with the yard-arm lights gave a much better idea about the course a vessel was approaching another. Sound signals which could be used during fog and thick weather were also suggested, a point which did not appear again for a considerable time.

³⁷ H.C., 1831 (335.), pp. 5-6;

³⁸ Ibid;

THE NAVIGATION OF THE RIVER THAMES BEFORE 1837.

In consequence of the Report of 1831 the original Bill of Alderman Wood was much improved and amended and now brought in by Colonel Sibthorp but was still only applicable to passenger steam-vessels employed on the Thames between Windsor and Yantlet Creek.

This Bill of 17th January 1832¹ started with four clauses regulating the licensing of vessels on the Thames. It included the appropriate form and made a regular survey compulsory: within three years for river-going vessels and within five years for sea-going vessels, to examine the condition of the hull and to ascertain the average performance of the wheels at full power, also after repairs following accidents. It restricted the number of passengers according to the intended voyage: two per registered ton burthen for sea-voyages and three per ton burthen for river-voyages. The amount of cargo and number of cattle shall be taken into account. Such license shall be granted for one year only and expired if the vessel left the Thames to be employed somewhere else. The details about crews and speed shall be painted on deck and an index shall be displayed which shows the actual speed. The regulation concerning the number of boats to be carried according to the length of voyage, rather than to the number of passengers, was drawn from the suggestions of the Report as were recommendations for speed, including the limits, and regarding the exhibition of lights. The rewards to the distressed owner of damaged lighters and boats and damaged or spoiled cargo shall amount to double its value. With this Act the Lord Mayor, Aldermen, and other Justices shall have greater power, for example by sending the person in charge of the vessel to prison. But one short clause weakened part of the aim of the Bill and left an interpretable escape for the person prosecuted: it left it to the Lord Mayor, Aldermen, or any other Justice concerned with that particular case not to convict the accused person "where it may appear that the speed could not be immediately regulated, and that there was no wilful neglect or omission to restrain or reduce the same." The rest of the Bill regulated the proceedings.

This Bill was amended in the Committee and printed under the date of the 23rd March 1832.² The section on the number of passengers was amended by a

¹ 2 Will. IV., 17 January 1832 (43.);

² 2 Will. IV., Bill, 23 March 1832 (305.);

definition for children and that on cargo and cattle was omitted, as well as that regarding the speed interpretation. The amendments and changes concerned the compensation to the aggrieved person which now shall only equal the value of the repaired damage and of the damaged or spoiled cargo and concerned an allowance of extra passengers with five per hundred registered tons. The limits of the speed restrictions were now London Bridge and Cuckold's Point, a shorter length than before. This proposed Act was intended to come into operation on the 24th June 1832.

The re-committed Bill of 8th June 1832³ had got an improved preamble. Thus far, the Bills concerned only passenger vessels on the Thames. This new preamble expanded the jurisdiction to steam-vessels carrying "Passengers and Goods in any River, Port or Place in the United Kingdom for any Passage or Voyage" and made compulsory a survey by a surveyor appointed by the Society for the Registry of Shipping with a final entry into The Register of Shipping, classified by the letters A, E, or I. Even the wages for the surveyor were regulated. This was the first attempt to apply such a navigation Act to the whole of the Country while the title of the Bill and the side-note remained unchanged. The incompatibility of local river regulations itself and the English Channel led to serious confusions amongst the commanders of steam-vessels⁴ and could have been avoided with this Act as far as it concerned lights. Two further clauses were amended: vessels plying without being registered as mentioned above shall only be fined but not be liable to seizure anymore. The certificate of registry shall be hung up in the cabin. The regulations regarding the number and size of boats, the lights to be carried, the compensation in case of damage to small craft, and the number of passengers, with an additional regulation concerning children, remained unchanged. The section on overriding the speed limit to avoid danger was put back into the Bill. Nevertheless in the whole this was a very well thought-out piece of legislation in the interest of the safety of customers, goods, and passengers.

The above-mentioned Bill was laid before the Committee again and re-committed a second time under the date of 16th July 1832.⁵ The result was a step far

³ 2 Will. IV., Bill, 8 June 1832 (520.);

⁴ See the chapters on Local River Regulations and on Regulations and Suggestions for Open Seas and Rivers Before 1840;

⁵ 2 Will. IV., Bill, 16 July 1832 (601.);

back. Six clauses were newly added or changed which made it to a masterpiece of capitalism. Still applicable to the whole country the word 'Goods' was omitted from the preamble. The whole section on the appointment of the surveyor and the registry of the vessels was simply left out. Instead the position of a surveyor was left to "some Ship-builder or other competent Person, in such manner as he [the Collector or other officer] in his discretion shall deem reasonable and proper, according to the circumstances of the case" (clause (B.)). This most important part of the Bill was herewith and intentionally so weakened that surveys in favour of the capitalist owner and corruption were made likely. The certificate after such "survey" would not contain the number of licensed passengers anymore since this clause was also struck out. Such 'certificate' was granted for two years, twice as long as in the former Bills. The number of boats, the most unproductive but costly part of the vessel, was reduced as well: one boat for river-going Steamers, two boats for sea-going steamers. The arrangement of lights had changed to one strong light at the mast-head and one such light at each cat-head. Compensation of damage shall be paid as in the former Bill but shall not exceed 40*l.* (a wherry cost about 25*l.*). Two other clauses were added: one which exempted H.M. Steam-vessels from this Act, they were often the subject of complaints, and another which provided that this Act shall apply to U.K. waters but not to the River Clyde.

The Bill was defeated on 28th July with a trick. A member for Glasgow had taken the Bill in his own hands during the absence of Alderman Wood and moved that it be read a second time after six months.⁶ There were no such Bills for the next three years.

This deliberate cut-back in efficiency was also mirrored in the new proposal for lights: The mast-head light had only a relative position between the cat-head lights when the steam-vessel was head-on or nearly so. Otherwise one cat-head light was shut out. The remaining two lights did hardly give an indication of the direction the vessel was going.

Why was the Bill of 8th June so radically changed? Was there tremendous pressure from shipowners and shipbuilders? Were the members of the Committee exchanged against those being conform and streamline? Did they have any interests

⁶ *Hansard*, Third Series, Vol. XIV, col. 930-31;

in the so affected steam-boat companies ? What was the role of the Parliament which so far opposed all efforts to regulate steam navigation ? Alderman Wood was surely right when he said before the House of Commons on June 29, 1835 that the Bill failed because of the unwillingness of the House to legislate in this matter.⁷ Unfortunately there were no debate proceedings in *Hansard* and no such reports or accounts in *The Times*.

As could be expected none of these measures and suggestions were adopted. The unacceptable situation went on and on. *The Times* focused from now on mostly on cases of major interest. Captain Daniel Hallsey, Gravesend steamer *Essex*, denied any danger to small boats whatever the speed of a steamer in a river as broad as the Thames at Limehouse. He was fined the maximum penalty of 5*l.* for going over the speed limit which was accompanied by the costs and sureties of 100*l.* for endangering lives and the return of the recognizances in case of another breach of the speed limit during the 12 months coming. The *Rose*, another Gravesend steam-vessel, tried to race out the *Essex* by driving her ashore. Her master was charged with a similar verdict. This was surely a one-off judgement, at least it was never reported again. It was the intention through such verdict to make other masters aware of the possibility of losing their occupation if they behaved in a similar manner.⁸ Instead, they were often fined less or seemed to have got away with an apology. The issue of racing steamers through the whole river as a way of competition became more and more serious.

Because the state of navigation did not improve at all and no appropriate steps were taken the Committee of Privy Council for Trade sent a letter to the Corporation of London. The Navigation Committee caused another investigation to be made which resulted in a peremptory order of 12th April 1833 to the harbour-masters that a passage way of not less than 300ft. had to be strictly enforced and that no more vessels shall be moored in the tiers than was allowed by the bye-laws.⁹

But this order showed as little effect as others before and was for Sir John Hall only further evidence that the harbour-masters treated the orders and higher authorities

⁷ *Hansard*, Third Series, Vol. XXIX, col. 7;

⁸ *The Times*, June 30, 1832;

⁹ H.C., 1836 (557.), p. 13;

with perfect ignorance. This was also evidence of a lack of discipline and effective supervision.¹⁰

The width of not less than 300ft. was again confirmed by the Port Committee in a Report to the Court of Common Council in November 1833.¹¹

On the third day of another inquest held by Mr. Carttar, Coroner for Kent, who put greatest efforts into them,¹² it appeared that there were still steam-vessels running on the Thames without a single light. The only sign of an approaching steam-vessel so far was the light from the chimney when the coals were stirred up.¹³

During most inquests the importance of that particular judgement for subsequent cases was stressed, a reason why they were attended by crowds of people interested in steam navigation. They were so far held at the Thames police-office with Mr. Broderip as its Magistrate. To see the rules and regulations properly obeyed he had the Old Bailey in mind as a more effective and powerful instrument for punishing offenders. Mr. Pearson, Solicitor, preferred the King's Bench for future verdicts.¹⁴ But if only one single case was brought before either of them was quite unlikely for later cases were again dealt with before the Thames police-office and the Coroners.

On 15th April 1835 a new set of proposed bye-laws was made by the Court of Common Council with alterations and amendments by the Navigation Committee consisting of 45 clauses in lieu for the code of 14th July 1829. It established four harbour-masters of whom one was the superintending or principal harbour-master, their powers to suspend watermen in cases of misconduct, their attendance at meetings, their day and night duties, the possibility of their dismissal, &c. Clauses (24.) and (25.) ordered a waterway of not less than 250ft. between Iron Gate Stairs and Bugsby's Hole and of not less than 200ft. between Iron Gate Stairs and London Bridge at low water.¹⁵ It carried on with regulations as to mooring colliers, to anchors, &c. Clause (43.) proposed vaguely that the speed of the steam-vessel shall be checked when coming near boats and other small craft. Clause (44.) regulated that when sailing the river above the west entrance of the West India Docks the number of

¹⁰ H.C., 1836 (557.), p. 13;

¹¹ Ibid.;

¹² 44 years later, in September 1878, he led the inquest into the collision between the passenger steamer *Princess Alice* and the collier *Bywell Castle* with a loss of about 640 lives off Woolwich;

¹³ *The Times*, June 16, 1834;

¹⁴ Ibid., August 16, 1834;

¹⁵ It was probably this clause (25.) which was later on changed towards an equal width of 250ft.;

piston strokes of the engine/s had to be reduced to one half by throttling the valve and that the vessel shall in no case go faster than five knots. Within these same limits steamers had to carry when under way a lantern with a strong light at the mast-head and another under the stem and bowsprit (clause (45.)).¹⁶

The clause on the width of the free channel through the Pool was referred back to the Navigation Committee on 2nd July for further inquiry.¹⁷ On 17th July a special meeting of the Committee was arranged to consider a petition of Sir John Hall. It was attended by delegates representing the coal traders, the wharfingers, by the four harbour-masters, the superintendent of the moorings, and others. Sir John Hall spoke in length in favour of a passage way of at least 300ft. and suggested to moor the colliers on the south side of the river, also about the urgency of removing shoals and mudbanks. The meeting was adjourned to meet again to hear evidence from both sides to this question.¹⁸

This was done on July 23 and August 4. It concerned mainly Sir John Hall's suggestion of removing the collier tiers to the south side of the River while nearly all parties (Captain Butlock, R.N., Surveyor of the Thames; 20 pilots; St. Katherine's Dock Company; London Dock Company; coal-traders; wharfingers; shipowners; Watermen's Company; &c.¹⁹) agreed on three points: that a free fairway of at least 300ft. through the Pool had to be kept, that proper moorings should be laid for the colliers, and that fewer should be allowed in each tier. They were backed by two petitions of which one was signed within nine days by nearly 5,700 persons. Sir John Hall put in a memorandum of his suggestions in which he also called for a penalty to be put on the harbour-masters for not obeying the order regarding a passage of 300ft. through the Pool.²⁰ However, on 22nd October 1835 18 members of the Navigation Committee signed their Report to the Court of Common Council to the effect that the colliers should not be removed as suggested and that a free channel of 300ft. was impracticable.²¹

¹⁶ H.C., 1836 (557.), App. p. 2-11;

¹⁷ Ibid., App. p. 1;

¹⁸ *The Times*, July 21, 1835;

¹⁹ H.C., 1836 (557.), App. pp. 1-2;

²⁰ *The Times*, July 25 and August 5, 1835;

²¹ H.C., 1836 (557.), App. pp. 1-2;

In the meantime a petition from the Thames watermen was laid before the House of Commons on 29th June 1835 praying again for the regulation of speed of steam-vessels on the River Thames. The response was a suggestion to build larger boats with higher bulwarks but the petition was not further discussed.²² The boats were indeed often so loaded that they had a freeboard of 3-4in. only.²³

An arrangement was made between the Lord Mayor, the harbour-master, and the Watermen's Company to station persons at London Bridge Wharf, St. Katherine's, Shadwell and Limehouse-hole to make notes of the names and times of steamers passing which can be used as evidence for prosecuting offenders.²⁴

It was again Alderman Wood who brought in a Bill "To regulate the Navigation of Steam Vessels upon the River Thames", dated the 31st July 1835.²⁵ It was of a much reduced form compared to those of 1832 but contained some of their clauses. The speed was limited to five knots generally between the west entrance of the West India Docks and London Bridge. The clauses regulated the passing of lighters and barges and compensation to their owners. The number of passengers, three for every ton burthen, was now independent of the kind of voyage, sea or river, the vessel was intended for. The arrangement for children was also modified. This Bill finally allowed more persons on board than all other Bills before. The section regarding extra passengers and allowing the increase of speed to avoid danger were also reintroduced. This Bill's jurisdiction was again restricted to the Thames between Windsor and Yantlet Creek only. No single word about surveying the vessel, certificates and licenses to be granted and their forms, lights to be displayed, and boats to be carried. Before the second reading took place on 10th August 1835 this Bill was opposed by another M.P. and postponed "until a future day" by Alderman Wood himself and then lost as well.²⁶

At the end of October 1835 a collision between a steam-boat and a fishing smack occurred off Woolwich due to the uncertainty of the course of each vessel. This was certainly not the first such case but was notable for *The Times*.²⁷ As already

²² *Hansard*, Third Series, Vol. XXIX, col. 7-8;

²³ See the evidence in the Report on the Port of London, especially Sir John Hall's evidence;

²⁴ *The Times*, July 2, 1835;

²⁵ 5 & 6 Will. IV., Bill, 31 July 1835 (458.);

²⁶ *Hansard*, Third Series, Vol. XXX, col. 230;

²⁷ *The Times*, October 30, 1835;

mentioned above there was no rule for passing each other on the Thames, although there were such for the River Clyde since 1816 and the River and Firth of Tay since 1824 at least.²⁸ It was the custom on the Thames to change the sides of the river to avoid the strength of the tide and to take benefit of the eddies while going against it and to sail in the strength of the tide in the middle of the River while going with it. This 'rule' was not followed by all vessels but 90%, generally accepted and understood as the proper course and hardly doubted. This was the reason why a clause concerning meeting and passing of vessels on the Thames did not appear in any of the Bills and recommended regulations. Probably the most critical point of the river was that off Woolwich where the Thames bends hard over and causes several currents and undercurrents which can turn the vessel easily around on an opposite course.²⁹ This custom-rule was also mentioned during the examination of witnesses after a collision between a barge and the *John Bull* steamer off Rotherhithe on the 17th October 1835. In that case the captain was accused of manslaughter only by a second jury while the first was split nine to three in favour of a verdict of accidental death.³⁰

Explanations in favour of this rule were given by several shipping companies in 1870 when it was considered to re-introduce the passing rule as it was ordered in "The Steam Navigation Act, 1851.", "The Merchant Shipping Act, 1854.", but repealed in "The Merchant Shipping Act Amendment Act, 1862.": to keep to the starboard side of the river or narrow channel when two steam-vessels meet and pass each other.³¹ This was opposed by steam-ship owners and masters for being impracticable because of the crowded state of the Thames; because several classes of vessels navigated the River and kept in the strength of the tide while the Rule of the Road was made for steamers only (?!); because the depth of water and the set of tides must be taken into account;

²⁸ See the chapter on Local River Regulations;

²⁹ As it, for example, so happened to the *Princess Alice* shortly before her collision with the *Bywell Castle* in September 1878;

³⁰ *The Times*, November 12 and November 16, 1835;

³¹ 14 & 15 Vict., CAP. LXXIX. An Act to consolidate and amend the Laws relating to the Regulation of Steam Navigation, and to the Boats and Lights to be carried with Sea-going Vessels. [7th August 1851.], Sect. 27;
17 & 18 Vict., CAP. CIV. An Act to amend and consolidate the Acts relating to Merchant Shipping. [10th August 1854.], Sect. 297;
25 & 26 Vict., CAP. LXIII. An Act to amend "the Merchant Shipping Act, 1854," "The Merchant Shipping Act Amendment Act, 1855," and "The Customs Consolidation Act, 1853." [29th July 1862.], Schd. A;

because the many sharp turnings of the River and the extreme tide differences made the Thames incomparable with other rivers like the Clyde.³²

On their meeting on 29th October 1835 the Navigation Committee confirmed again, with a vote of 7 to 5, a majority of two out of 45 members (!), that in their opinion a navigable channel of 300ft. width was impracticable and that they will therefore not alter the proposed bye-laws which were presented that day to the Court of Common Council. A discussion took place if only a certain part of the evidence taken by Sir John Hall before the Port Committee in July should be printed. It did not come to a division.³³ Finally, on 3rd November the evidence was ordered to be printed in order to be able to investigate the whole of the evidence before a decision in such an important question could be made. The Chairman of the Port Committee, Mr. Peacock, and another influential member tried to suppress any further discussion and to force the Committee's decision onto the Court arguing that printing the Report would be too expensive. But the Court of Common Council insisted on it since the accuracy of the Report was questioned and supported by such a small majority only, also because the Committee's decision was contradictory to that of former committees. The Court suspended the procedure towards a diminished width of the Pool.³⁴

The reasons for the watermen to make petitions to the House of Commons were easily understandable. But on the 12th November 1835 a meeting took place which was attended by, beside others, a Member of Parliament: Captain Alsager, M.P. for East-Surrey. The aim of the meeting was to prevent the loss of life on the River Thames caused by the great rapidity of steam-boats in the Pool. Captain Alsager gave a general statement and left it to a committee to decide on relevant solutions: by reducing the speed, by signals, or by other measures. Alderman Wood's lost efforts were mentioned by him. Resolutions were framed and a committee appointed to take them as petition before the Parliament. Unfortunately the article did not tell more.³⁵

The state of the Thames, the long and fruitless discussions in the letters to the editor, in meetings and committees of persons affected by steam navigation and the

³² H.C., 1871 (465.);

³³ *The Times*, October 30 and October 31, 1835;

³⁴ *Ibid.*, November 4, 1835;

³⁵ *Ibid.*, November 13, 1835;

resultless efforts by the Lord Mayor, the Aldermen, and the Watermen's Company to achieve some regulatory means towards the steamers in the Pool finally led *The Times* to a leading article on this subject.

This evil, so disgraceful to an otherwise well-ordered community, has been allowed to increase in a degree which one shudders to contemplate; and there can be as little doubt that no diminution will take place in the number of cruel acts of wanton manslaughter so perpetrated, unless the Legislature interfere, as that the Legislature will not interfere until the public voice shall rouse members from the political playthings with which the Whig-Radical Government is amusing them, and shall force them into employing their time and talents upon the redress of real grievances and the reformation of practical evils.

The Times suggested to forbid steamers above a certain tonnage to go further up-river than Greenwich and to limit the speed throughout the river. Until then it was the duty of the judges to put the highest penalties upon the responsible persons.³⁶

This suggestion of closing a part of the river for certain vessels was of course rejected by steam-boat owners and Sir John Hall in the Report on the State of the Port, 1836 but he said that this measure was agreed between the London and Blackwall railways and the harbour-masters as the best way to tackle the overcrowded Pool.³⁷

On 3rd December 1835 a meeting between owners, shareholders, and other persons connected with steam navigation took place, not only to discuss in some detail the state of the Pool but first of all to convince the public of their desire of preventing further accidents and of their being a humane and enlightened body. James Wright addressed a letter to the meeting proposing that steam-vessels should have a horn aboard, sounding the same whenever it is tacking and recommended a code of sound signals to regulate the movement of colliers. Mr. Chrichton reminded the meeting of the regulations for navigating the much less crowded River Clyde. The crowded state of the Thames with a much stronger tide made such regulations for this river tenfold more necessary. Mr. Hall of the Custom House quay proposed a dock for colliers as the latter were the main cause of obstruction as 500-700 of them came into the Pool every week. A committee should be appointed by the meeting and a report be drawn up as a basis for future proceedings before they took further steps towards the Government. Another speaker demanded keeping the colliers out of the Pool and to employ lighters for ferrying the coal between them and London. The following

³⁶ *The Times*, November 19, 1835;

³⁷ H.C., 1836 (557.), p. 4;

resolutions were then agreed to before the meeting adjourned: (1.) The meeting sees the necessity of regulating the navigation of the river through proper and enforced enactment regarding the mooring of shipping and the navigation of steamers and other craft; (2.) The increase in trade conveyed by steam makes regulations for the security of public and property even more necessary; (3.) A passage of not less than 300ft. is most essential, also that vessels using this passage are properly manned and navigated; (4.) Besides other regulations the speed of steam-vessels should be limited but also the size and construction of wherries be made suitable for the new circumstances; (5.) These measures shall be submitted by a deputation to the Home Department to bring it before the Parliament.³⁸ Was this done ?

A memorial, signed by more than 400 watermen, was presented to the Court to draw the attention of the Government to this subject. The watermen's petition for a committee inquiring into this subject came close to the course taken by the steam-vessel proprietors and shareholders and they were confident that the conflicting interests should be overcome soon.³⁹

Alderman Wood, although so intimidated by the negative response to his numerous efforts rose again on 9th February 1836 to bring in a Bill For the Navigation of Steam Vessels on the River Thames being aware of a petition from the watermen. But he announced also that "he should not then trespass longer upon the indulgence of the house."⁴⁰

Before this Bill was presented, probably that of 28th March 1836, the Pilotage Report of February 25, 1836 was laid before the House.⁴¹

This Bill⁴² was so far the last which continued Alderman Wood's efforts to bring through some regulatory means for the navigation of the Thames.

The first clause limited the speed for steam-vessels to five knots generally, probably over the ground, between Limehouse Entrance and London Bridge (penalties increasing from up to 20*l.* for the first offence to not less than 100*l.* for the third and more offences). The second clause urged the commanding officer to slow down when near small boats or craft (penalty up to 10*l.* plus damage). The third to sixth clause

³⁸ *The Times*, December 4, 1835;

³⁹ *Ibid.*, January 9, 1836;

⁴⁰ *Ibid.*, February 10, 1836;

⁴¹ H.C. and H.L., 1836 [56.];

⁴² 6 Will. IV., Bill, 28 March 1836 (141.);

regulated the appointment of inspectors of steam-vessels by the Lord Mayor, the former to be placed on each steam-vessel under way between Limehouse Entrance and London Bridge to "have power and authority to direct and regulate such Steam Vessel". This measure shall not free the commanding person from any responsibility but a penalty was liable when the orders of the inspector were not obeyed. The conflict between these sections is obvious. He was to be paid after each voyage by the steam-boat company (and not by the city). The seventh clause was an attempt to introduce meeting and passing regulations as they already existed for example for the River Clyde and the River and Firth of Tay. It was so far not decided to which side of the river the steam-vessel shall keep when passing any other vessel. These words were left out and had to be filled in after further discussion. It applied to the whole jurisdiction of the Conservators (penalty up to 10*l.*). The number of passengers was regulated as in the Bill of 31st July 1835. A clause about exhibiting lights in a triangle (mast-head light and cat-head lights, the mast-head light had to be placed at least twelve feet above the deck) was re-introduced but also applied to the River Thames only (penalty up to 10*l.*). Clause (12.) again allowed the increase of speed beyond the limit to avoid danger and clause (13.) allowed an overhead of passengers of five per one hundred tons as in earlier Bills. The rest of the Bill regarded the Court and other proceedings. As there were no printed Parliamentary proceedings relating to this Bill in either *The Times* or in *Hansard* it is to be assumed that it was lost as quickly as the others.

The Court of Common Council met on 21st April 1836 to discuss the reduction of the passage through the Pool from 300ft. to 250ft. as recommended in a report of the London Port Committee. This was also to be a subject for discussion in Parliament. After several formal statements and those for and against the postponement of this question a letter from Sir John Hall was read stating that the Trinity House reported the harbour-masters before them on the obstruction in the river. He himself supported a free passage of 300ft. This was also the general opinion of the Court. The Lord Mayor said that he will direct the harbour-masters to keep the space of 300ft. while the final decision thereon was postponed and the meeting dissolved.⁴³

⁴³ *The Times*, April 22, 1836;

THE REPORT ON THE LAWS AND REGULATIONS OF PILOTAGE IN THE U.K., 1836 [56].

Seven Commissioners were appointed on 13th August 1835 to inquire into the laws of pilotage in the U.K. They signed the Report of 32 pages on 25th February 1836 and presented it to both Houses of Parliament. Minutes of evidence were not published but the results of their investigations.

Having collected information from all principal ports and communicated with the pilots in all ports the Commissioners stressed the importance of a sound system of pilotage, suggested to review the pilotage rates, and to keep the regulations simple. They recommended and outlined a Bill while giving comments on most of the clauses. On page 13 the Commissioners printed a short section on accidents and collisions. They recalled the Report on Steam Navigation of 1831 and its recommendation for a Rule of the Road which was never adopted. The tack rule for sailing-vessels had proved satisfactory in operation and was acknowledged in the Courts. But there should also be some regulations like those for the River Clyde. A set of rules was laid before the Commissioners which they printed in the appendix. They recommended also severe penalties against racing of steam-boats.

Together with the Bill of 8th June 1832 these suggestions were to that date of the most comprehensive character: The first clause that steam-vessels in the Thames (specifically mentioned !) and all rivers and channels of the U.K. shall keep to the starboard side of the fairway was a general rule to bring some principal order in traffic routes and included the Thames as it was specifically mentioned. It did not make any exemptions. The second clause that when steamers meet in contrary directions they shall pass larboard to larboard was only a special case of the first rule but made it even clearer and did not leave anything to interpret. That steamers shall give way to sailing and all other vessels in all circumstances (3.) was so far unwritten rule and understanding. They shall reduce or stop the revolutions of the paddles when approaching smaller vessels (4.). Steam-vessels assisted by their sails shall be taken as being under steam. The reason was supplied with it: to make it impossible to avoid the rules by hoisting a small sail (5.). Such regulation came only into operation with the collision regulations of 1863 but without explanation. So far the proposal was a-

head of its time. The sixth and seventh clause enforced these foregoing clauses for day and night times and proposed a yard-arm at least 6ft. above the paddle-boxes to exhibit three bright lights: two of them were hung perpendicular 3ft. apart on the larboard yard-arm on vessels coming up-river or channel and all of them were displayed horizontally on those coming down-river or channel.

Why did the Commissioners recommend a passing rule contradictory to the widely established starboard to starboard passing practice and a different system of exhibiting lights rather than supporting earlier suggestions or proven practices which were also much more advanced. If the regulations were laid before the Commissioners by pilots, who were sailing the vessels also around and along the coasts, why did they not include coastal waters as suggested in the Report on Steam Navigation, 1831 and again in the Bill of 8th June 1832 ? This was not the main concern of the Commissioners which might have been the reason why they did not spend much thought on this matter but in this respect they only added to the confusion instead of simplifying the rules.

The last clause inflicted penalties of up to 5*l.* for offences against the proposed regulations. For more efficiency one half of the fine should be paid to the informer.

THE REPORT FROM THE SELECT COMMITTEE ON THE PORT OF LONDON, 1836 (557.).

On February 15, 1836 a Select Committee was appointed to inquire into the state of the Port of London. 15 members were nominated, between them Poulett Thomson (President of the Board of Trade¹); the Lord Mayor; Alderman Wood; Captain Alsager, M.P. for East-Surrey; Henry Labouchere (Vice-President of the Board of Trade²); Sir Charles Adam (First Naval Lord of the Admiralty³); and George Frederick Young (M.P., shipowner, and President of the General Shipowners' Society). The evidence was taken on 16 days from 12th May to 5th August 1836 from 50 witnesses, some of them examined several times, and printed on 294 pages plus 296 pages of appendices. The resolutions were then agreed upon on 10th August and ordered to be printed on 12th August 1836.

Sir John Hall, of the St. Katherine's Dock Company, was the first and principal witness during the inquiry being examined twice on altogether two whole days and 46 pages. He described the aim of the inquiry more precisely as⁴

an investigation into the state of the navigation of the River Thames below London Bridge, into the regulation of the port, and a consideration of the best means of improving the same, with a view to afford additional and greater security to the public, and especially to shipping, craft, &c., frequenting the port of London; and further to consider of such precautionary and remedial measures as shall appear best calculated to guard against the recurrence of accidents from steam navigation within those limits.

In his opinion the Committee therefore had to investigate the regulations against accidents connected to steam navigation; into the construction and improvement of wherries for passenger ferrying to make them suitable for the new circumstances; into the removal of obstructions on and in the River (colliers, shoals, mud banks, &c.); and into the management and supervision of the harbour service for making it more efficient.⁵

That the Bills of Alderman Wood were never passed had been due, in Sir John Hall's opinion, to their impracticability and successful opposition by parties whose

¹ Prouty, 1957, p. 109;

² Ibid.;

³ Rodger, p. 92;

⁴ H.C., 1836 (557.), p. 2;

⁵ Ibid.;

interests could be affected by them. One of these impracticabilities was the limitation of speed to a certain number of knots. The resistance of the vessel's hull depended on too many factors (its draft and consequently that of the paddles; the depth of water; the strength and direction of the tide, currents, undercurrents, slacks and eddies, the eventual aid of sails, &c.). The best mode of reducing the speed, and it should be reduced to half speed between Deptford and London Bridge, seemed to be by throttling the valve and therewith limiting the amount of steam through the steam-pipe. An indicator on deck, one for each machine and regularly surveyed and certificated, could act as control-mechanism for the public and a bell would be rung automatically when going over the limit which would also lead other vessels to precautionary observation.⁶

Other recommendations were that no persons or goods shall be taken on board or disembarked in the Lower Pool, that the paddle-wheels shall be stopped as soon as passenger-wherries are within a boat's length from the steamer, and that no more than three persons per ton admeasurement, with a special arrangement for children, shall be allowed on board. There shall be no deduction for the engine. Regarding lights and passing Sir John Hall suggested a brilliant white light at the mast-head and a red light at each paddle-box and wanted the passing regulations as recommended by the Report of 1831 (starboarding the helm) put into force. These two regulations were preferable to those of the Pilotage Committee of 1836. Passenger steamers shall also carry one boat in tow for the case of accidents.⁷

His second point concerned the construction of wherries which should be improved to withstand the altered mode of navigation. The present wherries were all of 20ft. 6in. length in keel but varying depth and beam. On 1st January 1836 2,085 such wherries of three classes were licensed by the Watermen's Company plus 103 by Trinity House but a good number was not in use. He submitted two plans of improved wherries, one developed by him, the other by the Watermen's Company. Sir John Hall's plan proposed wherries in two lengths of keel, 17ft. and 18ft., varying beam and depth, and a freeboard of 12in. All scantlings and dimensions were precisely described. Their price would be 22*l.*-24*l.* The watermen's plan differed in

⁶ H.C., 1836 (557.), pp. 4-5;

⁷ *Ibid.*, pp. 5-6;

the length of keel (14ft., 16ft., and 18ft. minimum) and in the broader beam (up to 8in.) but had equal or slightly more freeboard.⁸

Because the steam-vessel owners were the cause for the need of improved wherries they were prepared to raise funds by voluntary contribution for distribution by the Watermen's Company first of all to the purchasers of the first 250 boats as premium but also as entire source to those who cannot pay at all for new boats.⁹

Concluding his first examination Sir John Hall submitted 16 clauses of suggestions and leading heads for a Bill to "consolidate, amend and enlarge the powers of the several Acts for rendering more commodious, and for better regulating the port of London." (A.) The management and maintenance of moorings in the River shall be transferred to Trinity House. (B.) Trinity House shall have the power to make bye-laws, rules, and orders for the regulation of the port and harbour service which shall be approved by the Board of Trade and sanctioned by judges. (C.) Copies of proposed bye-laws shall be made available publicly. (D.) The Elder Brethren of Trinity House shall be empowered to control, direct, and suspend the harbour-masters, to dismiss sub-ordinate officers, and fill the vacancies if required. (E.) As regards the appointment of a King's or principal harbour-master his qualification shall be approved by Trinity House and he shall have under him other harbour-masters being subject to his orders and instructions. (G.) A Passage of 300ft. shall be maintained between the tiers below London Bridge. (K.) Steam-vessels shall, between Blackwall and London Bridge, throttle the valves of their steam-pipes to reduce the speed to one-half of full speed with an indicator as described. This shall not apply to steam-vessels while towing. (L.) Passengers shall not embark or disembark between Cuckold's Point and Queen Stairs. The paddle-wheels shall be stopped while embarking or disembarking passengers. (M.) The steam-vessel shall be allowed to carry only three passengers per ton burthen with a special arrangement for children. (N.) The look-out shall consist of at least one person (master, pilot, or mate) on one of the paddle-boxes, and one man in the bow. The name of the vessel shall be painted outside on the paddle-boxes. (O.) A brilliant white light shall be exhibited at the mast-head and a red light on each paddle-box. (P.) Steam-vessels shall give way to sailing-vessels and steam-vessels when meeting stem-on shall both starboard their helm. Only wherries

⁸ H.C., 1836 (557.), pp. 7-9;

⁹ Ibid., p. 9;

of dimensions agreed by the Select Committee shall be licensed by the watermen or Trinity House.¹⁰

The suggestion concerning the harbour-masters was later adopted for the bye-law of 1st March 1837.¹¹ He himself adopted the clause for the limiting of passengers from the Bill of 28th March 1836. But why did he recommend a new system of side-lights of the same colour and did not refer to an established and proven system, for example that of the City of Dublin Steam-packet Company. The sides of a steamer were this way not distinguishable at a glance. It would only add to the confusion in situations of stress and last minute decisions and would not result in very useful evidence before police-offices and Courts. Regarding passing of steamers he suggested the adoption of the more widely established starboard-helm rule.

Another witness was Captain Frederick Bullock, former Surveyor to the Royal Navy. He said that it would be impossible to control the speed of steam-vessels through the throttle-valve. Such experiments were ordered by the Admiralty but failed. When the indicator showed half-speed the steamer was in fact going at nearly full speed.¹² He admitted the necessity for regulating the speed but said that it was more important and efficient to regulate the anchoring and mooring of colliers and vessels in the River. It was impossible to go through the River without doing any damage.¹³

He proposed a code of six rules for the navigation of the Thames regarding the mooring of steamers; the maintaining of the established tack rule for sailing-vessels and, with a leading wind, applying it to steam-vessels; the passing of steamers and sailing-vessels; and regarding traffic regulations for boats and barges according to mode of propulsion and tide.¹⁴

Apart from recommending the placing of the wheel forward he suggested a system of lights which was similar to but simpler than that of the Pilotage Committee, 1836: steam-vessels going up-river should carry one light at the starboard yard-arm and two vertically on the larboard yard-arm, when going down-river they should have just one

¹⁰ H.C., 1836 (557.), pp. 24-26;

¹¹ *The Times*, January 28, 1837; see chapter on Thames Navigation Before 1840;

¹² H.C., 1836 (557.), p. 63;

¹³ *Ibid.*, p. 64;

¹⁴ *Ibid.*; as to more lights see other witnesses suggestions below;

light at each yard-arm. In addition the steamer should have a brilliant red light at the cutwater to enable boats to see the centre of the vessel.¹⁵

Speed, how to ascertain it on the vessel, and how to make sure that the respective regulation will be obeyed was one of the main issues of this Report.

The Chairman of the Star Company, Robert Peirce Cruden, supported its regulation and referred to the clause in Alderman Wood's Bill that allowed the increase of speed to avoid danger as far as there was no wilful neglect involved in doing so. He thought this clause to be sufficient to restrain the vessels from unnecessary and excessive speed.¹⁶

The principal Harbour-master John Fisher was also in favour of this clause. To restrict steam-vessels throughout the River to a certain speed could otherwise result in more accidents.¹⁷ But he wanted the steamers to be controlled by inspectors stationed at their posts in half-mile distances on the shore to take their times. He also said that it appeared to him that the clearer the fairway the quicker the steamers go.¹⁸

Thomas Simpson, timber Merchant on the River and before having been in the coasting trade out of London, suggested that steamers causing loss of life shall be struck from the register for several months in addition to penalties and deodants.¹⁹

One of the sub-ordinated Harbour-masters, Charles Rowland, who also submitted a plan for mooring vessels, saw the best possibility in ascertaining the speed by the number of piston strokes which had to be found out by trial for each particular vessel. The passengers would be able to count the strokes per minute with their watch if such number would be painted on the inside of the paddle-box.²⁰ On a further examination he delivered a table made from 1st July to 24th July 1836 stating for each of four stations how many passages were made with full speed and with half or moderate speed. The stations were London Bridge to St. Katherine's Dock, St. Katherine's to Wapping Entrance of London Docks, London Dock Entrance to Shadwell, and Shadwell Dock to Limehouse. The statistic showed that for the upper station 20%, for the second station 32%, for the third station 46%, and for the lower station 68% of all

¹⁵ H.C., 1836 (557.), p. 65;

¹⁶ Ibid., p. 30;

¹⁷ The philosophy of steam-vessel masters was to increase the speed in crowded parts of the Thames in order to go through and leave the danger behind as quickly as possible;

¹⁸ H.C., 1836 (557.), pp. 119-120;

¹⁹ Ibid., p. 150;

²⁰ Ibid., p. 153;

vessels passed at full speed. The number of passages during the whole of the time for station one, three, and four was around 2,300 and for station two above 1,900.²¹ Mr. Rowland also demanded clear definitions of the terms '*deep loaded barges*', '*coming near*', and regulations regarding the amount of freeboard for barges and wherries.²²

The limitation of speed would, in the opinion of Charles Hay, Master of the Watermen's Company, be the best way to prevent steamers from overtaking each other in the Pool between Blackwall and London Bridge. The masters and owners of steam-boats were aware of the damage they did, why they all, apart from those licensed by the Watermen's Company, took off their names and ports of registry.²³ To observe the speed limit an inspector could be put on board of each vessel as proposed in the Bill of 28th March 1836 but this was mostly opposed especially by steam-boat owners as authority over a steam-vessel could be exercised by one person only. The Solicitor of the Star Steam-boat Company, John Matthews, made the right statement that the master might be deported for manslaughter after a fatal accident in consequence of obeying the order of the inspector who would, by law, not be responsible for it.²⁴ Only towards the end of the evidence the possibility of a log such as Massey's patent log was mentioned for ascertaining the rate of speed.²⁵

Concerning lights there were no new suggestions. Charles Rowland pointed out, while also speaking for others, that the lights to be hung at the cat-heads as proposed in the Bill would blind the conductor, he meant the look-out on the paddle-box, but otherwise the plan was welcomed if the lights would be placed beneath them for assistance.²⁶ According to him and the Committee Chairman there was a regulation laid down by the Lord Mayor to exhibit a light at the foremast-head. Instead it was often placed at the top of the funnel. One uniform system should be adopted by all.²⁷ Daniel Halsey, Master of a Diamond steam-packet, displayed always one light at the mast-head and one under the bows.²⁸

²¹ H.C., 1836 (557.), p. 259;

²² Ibid., p. 254;

²³ Ibid., p. 245;

²⁴ Ibid., p. 271;

²⁵ Ibid., p. 273;

²⁶ Ibid., p. 255;

²⁷ Ibid., p. 256;

²⁸ Ibid., p. 269;

The subject of meeting and passing vessels was also attended to. Mr. Cruden remarked rightly that there was no rule or law on this. A uniform rule should be adopted that vessel coming head-on put both their helms either to port or to starboard and that ships going with the tide should give way to those going against the tide.²⁹

This might in fact be objectionable and rather better the other way round as the vessel going with a strong tide might lose its steerage way and unintentionally be turned round by the set of the tide while the other vessel would not.

The custom of changing to either side of the River to get the benefit or to avoid the strength of the tide was very much established. The Harbour-master Charles Rowland therefore opposed clause (7.) of the Bill of 28th March 1836 (keeping to a certain side of the stream) as a steamer going against the tide would be forced into the strength of the tide ("go into the stream") and a steamer coming with the tide would have to go through slack water ("into the slack tide") because of the Thames' meandering habit. This would be "entirely out of their course" and the masters would be fined if they kept to their established rule.³⁰ Charles Hay simply said that such rule as proposed would be impossible to obey.³¹ Captain William Cunningham, of the *Fairy* steam-packet, was very much in support of such clause as long as the vessels going with the tide keep in the middle of the River and those against the tide to the inshore side of the Thames.³²

The number of passengers carried on steamers was another issue. It appeared that up to ten passengers per register ton were put on board (Charles Rowland, Charles Hay)³³ although five per ton already left them in rather cramped conditions (William Cunningham).³⁴ But it is not always clear to which standard of admeasurement the witnesses spoke for the mode had very recently changed with the Tonnage Admeasurement Act, 1835³⁵ which reduced the tonnage considerably. Charles Hay suggested that either the Watermen's Company, the Corporation of London, or Trinity House should register and license the number of passengers the steamers were allowed

²⁹ H.C., 1836 (557.), p. 32;

³⁰ Ibid., pp. 255-56;

³¹ Ibid., p. 244;

³² Ibid., p. 261;

³³ Ibid., pp. 256, 245;

³⁴ Ibid., p. 261;

³⁵ 5 & 6 Will. IV., CAP. LVI. An Act to regulate the Admeasurement of the Tonnage and Burthen of the Merchant Shipping of the United Kingdom. [9th September 1835.];

to carry. But it should be no more than three per ton which was agreed by several persons of the Margate Company. Such regulation already existed for sailing-vessels. If the vessel carried an excessive number of passengers the master should be removed from his position for incompetence and improper conduct. The fines for exceeding the allowed number of passengers should be high enough so that the sum of the fares did not pay the fine.³⁶ Three passengers per ton register was also agreed by John Matthews, Solicitor to the Star Company, provided that it would be measured after the former standard.³⁷

During the time the evidence was taken the situation of the Pool improved to an acceptable state. According to Edward Pashley, Pilot of the Port of London, the colliers were better moored since the beginning of May 1836 and the fairway of 300ft. had been kept due to the better attendance of the harbour-masters to their duties,³⁸ in Sir John Hall's opinion a result of the investigations made by the present Lord Mayor into complaints.³⁹

After nearly 600 pages of detailed evidence and appendices the Report itself of just over one page with six resolutions, which were agreed on but in the printed form not even signed, looked rather poor. The first two resolutions were only a general statement that the port and river navigation has been obstructed, the shipping injured, and accidents occurred with loss of life through the increased and increasing amount of steam navigation, the mooring of colliers in the stream, banks and shoals, and through improper supervision of the harbour-service. The Committee suggested in their third resolution that the conflicting jurisdictions of the Admiralty, Trinity House, and Corporation of the City of London over the Thames below London Bridge should be transferred to one responsible body. The fourth resolution seemed to have in mind a Bill similar to that suggested by Sir John Hall and recommended to bring such in early next session. The fifth resolution thought it advisable to maintain a clear passage-way of 300ft. in the Pool as presently ordered in the bye-law, that the colliers should be properly moored and that in the case of interruption to navigation collier docks should be constructed. Regarding the loss of life the last resolution

³⁶ H.C., 1836 (557.), pp. 244-45;

³⁷ *Ibid.*, p. 271;

³⁸ *Ibid.*, p. 80;

³⁹ *Ibid.*, p. 101;

recommended a reduction of speed of steam-vessels between Deptford and London Bridge and the restriction of the number of passengers.⁴⁰

The Report did not mention the necessity of some lighting systems and of some Rule of the Road not even for steam-vessels when meeting end-on, leave alone one for general passing situations.

Again, apart from a new code of harbour-master's bye-laws of 1st March 1837 no other measures followed at all. No Bill of any kind concerning steam navigation was brought in.

⁴⁰ H.C., 1836 (557.), pp. iii-iv;

THE NAVIGATION OF THE RIVER THAMES BEFORE 1840.

Disputes and legal proceedings about racing of steam-boats between rival companies were the main issue for the following years. Such arose before the Thames police-office and the Lord Mayor on 16th February, 31st March, and 3rd April 1837. The first was opened by Mr. Matthews, Secretary and Solicitor of the Star Steam-boat Company, against the Diamond Steam-boat Company whose masters were constantly racing out the Star steamers and ran their vessels wilfully and maliciously into them. The master could be fined only the ridiculous (but highest possible) sum of 5*l.* but, as could be predicted, the violence increased although the Queen's Bench recommended (not ordered !) to stop such way of competition. The Star Company changed its departing times, while the other Company followed to keep up the competition. Chief Surveyor Evans was ordered to observe the conduct of the masters of the companies.¹

The second meeting took place in the Mansion-house before the Lord Mayor. The Director Mr. Cruden stressed that the Star Company was anxious to see a Bill getting through for limiting the speed. But the Lord Mayor was not very confident that an Act might be passed before another great number of lives was lost. Therefore he must interfere as far as his powers allowed him to do so. According to Mr. Tickner, another Star Director, there was a regulation for Gravesend steamers at London Bridge to depart at half hourly intervals only. Such bye-law should be put into existence for Gravesend as well. Mr. Alderman reminded the Lord Mayor that the director of the Diamond Company insisted on carrying on existing practice and that he should take immediate steps.²

The last meeting as reported in *The Times* was opened in the Thames police-office again by Mr. Ballentine, jun., for the Diamond Company, asking for a postponement of the case to try to settle it by agreement between the two companies. The Star Company was pleased to hear this and Mr. Broderip, Magistrate of the Thames police-office, refused to suggest any means of preventing this evil but said that 15 minutes difference between the departure times were not enough. He also expressed his hope

¹ *The Times*, February 17, 1837;

² *Ibid.*, April 1, 1837;

that this foolish competition will from now on be ended.³ This was the outcome of three days of investigation into such an important matter !

From 1st March 1837 new bye-laws for the Port of London came into operation. The width of the passage was newly regulated. Between Bugsby's Hole and Irongate Stairs the fairway had to be not less than 300ft., between there and London Bridge not less than 200ft. at low water. The number of colliers in every tier was limited again besides other minor regulations and exemptions.⁴

But why did this article present the changes concerning the harbour-masters and their governing of the port and other duties as novelty as this was only the execution of the clauses of the Harbour-masters' Act, 1829 ? Was there any delay in accomplishing the Act ?

A Select Committee of the House of Lords "to inquire into the present state of the laws which regulate the carriage of passengers for hire upon the river Thames" took evidence, also regarding the jurisdiction of the Watermen's and Lightermen's Act, 1827 and the bye-laws made in pursuance thereof of 15th April 1828. Once more the regulation of steamers plying within their limits and especially their speed was subject to discussion.⁵

The 42nd section of the bye-law limited the steam-boats to five knots between London Bridge and Limehouse and although two Captains, Mr. Tisdale and Mr. Hollingham of the Star Steam-packet Company, were found guilty in September 1834, for not obeying this section. Mr. Fladgate, Solicitor for the London and Westminster Steam-Boat Company, assumed that the steam-boats were only tolerated by the watermen as the engineers of steam-boats were not freemen (clause (37.) and (38.) made compulsory that only freeman were allowed to work or cause to work and navigate on the river). Unless watermen learned their business these steam-boats did not fall under this Act. These two cases were brought before the Court of the King's Bench for argument but the amount of work did not allow a decision yet (July 1837).⁶

Several prosecutions by the Watermen's Company and individuals were put before the Lord Mayor, the Thames police-office, and other offices for navigating steam-

³ *The Times*, April 4, 1837;

⁴ *Ibid.*, January 28, 1837;

⁵ H.C., 1837-38 (563.);

⁶ *Ibid.*, pp. 7, 10;

boats at a greater speed than allowed in the bye-law. The magistrates decided that the steamers were within the meaning of the Act and consequently these inquiries were followed by convictions. However, appeals to the quarter sessions were confirmed while the steam-boat owners did not appeal against it in a higher Court. In fact several steamers were licensed by the Watermen's Company who never doubted that they were within the meaning of the Act. According to its Solicitor John Eggar Cooper clause (38.) was made to prevent unskilful persons from working barges and craft on the Thames.⁷

In the view of John Matthews steam-vessels were allowed to go at any speed they liked and to carry any number of passengers they liked.⁸ This company welcomed provisions to regulate the speed of steam-vessels but since Alderman Wood's Bills were not put into operation he considered them as not being under any law.⁹

So far only the evidence was published and ordered to be printed on 6th July 1838. A Report was not agreed on because of the sudden close of the session. The re-opened Committee came in their Report of one page to the conclusion that the construction of the Acts of Parliament gave the Watermen's Company the power to close the steam-boat traffic on the Thames altogether. Also, that the exclusive power of the Company shall be taken away and the establishing of steam-boats opened to the public under legislation which ensured the safety of the public.¹⁰

While the Committee still took evidence the subject of racing of steamers was once more laid before the Lord Mayor on 29th June 1837 in the Court of Common Council where he tried to delegate the matter to the harbour-masters who, he surely knew, could not do anything. About Alderman Wood *The Times* reported:¹¹

⁷ H.C., 1837-38 (563.), pp. 10-11;

⁸ The Report unfortunately does not give a clear picture about the bye-law sections regarding passenger numbers. A bye-law previous to that of 15th April 1828 allowed with clause (28.) five passengers for every ton burthen. During the discussion of a new code of bye-laws the Lord Mayor and Aldermen did not agree in the point on passenger numbers, so that the bye-law of 15th April 1828 did not have such clause. The Watermen's Company thought two or at the most three passengers per ton to be the limit passenger vessels should carry. This limit of three passengers for every register ton burthen was proposed for the new bye-law of September 1835. The sanctioning of the bye-law was postponed as the question if steam-vessels were within the Watermen's Act was still before the King's Bench. The bye-law of 1828 was consequently still in operation (H.C., 1837-38 (563.), pp. 10-11);

⁹ Ibid., p. 21;

¹⁰ Ibid., p. 23;

¹¹ *The Times*, June 30, 1837;

Alderman WOOD said that in the hope of remedying the evil he had introduced two bills into Parliament, but (as our reporter understood the alderman) a certain course was adopted "up stairs" which had the effect of making both measures ineffective. He had been pressed after these adverse results to bring in a compulsory bill, but he could not consent to introduce any measure of restrictive operation upon trade, and had of course declined the suggestion. There was, however, a remedy at hand. By the Blackwall and Greenwich railroad all the apprehended dangers would be completely avoided.

Mr. Hall (Sir John Hall ?) strongly opposed this Bill's measure to regulate the speed of steamers. It ought to be looked at in no party's interests. The Lord Mayor declared again to interfere immediately and the subject was dropped.¹²

With this meeting it turned out finally that the Bills brought forward by Alderman Wood were not as progressive and radical as they appeared to be but were only meant to put the steam trade and conveyance on a more popular footing. Or did he change his mind only in order to achieve just something ?

On 14th November 1837 the Gravesend steamer *Mercury*, Star Steam-boat Company, ran over a collier's boat in Blackwall Reach, containing five persons, when towed up by a billy boy.¹³ Both parties came up-river, the billy boy on the starboard tack about to cross the river to the north. The steamer intended to go round her stern but the boat let go the painter and was run over. One person drowned, one was found dead in the wheel, two were severely injured. The steamer was under full speed and did not alter course.

Evidence was taken on two sessions in a crowded room before a highly interested audience and a great number of witnesses heard, filling four columns in *The Times*. After that, probably because of the extreme contradictory statements given, the jury returned a verdict of accidental death rather than manslaughter, (12 to 5) with a deodand of 100*l.* on the steamer.¹⁴

Mr. Pousset said, he did not clearly understand the fore man. Was a deodand inflicted on the jolly boat ?

The Foreman.—On the jolly boat, indeed; what, inflict a deodand on that which has suffered the injury? How can you think of such a thing ?

Mr. Pelham said, it was too bad to attempt to impugn the verdict of the Jury.

Several jurors said, the remarks of Mr. Poussett were quite uncalled for, and the Coroner said, it would be better to abstain from such a line of conduct—it was, to say the least of it, highly improper. He had read the verdict, which was a deodand of 100*l.* on the *Mercury* Steam Packet. The foreman not having agreed in the verdict he should swear in Mr. Bishop, another juror, to act for him. Mr. Bishop was accordingly sworn in.

¹² *The Times*, June 30, 1837;

¹³ Yorkshire vessel with one mast;

¹⁴ *The Times*, November 15, November 18, and November 21, 1837;

Mr. Mitchell, the original foreman, then rose and said, that now the case was over, he must express his opinion and that of the jury, that there was much culpable neglect on board the steam boat, and that a proper look-out had not been kept. He must also add that the late observation of the Steam Boat Company's solicitor was uncalled for and unprofessional.

Mr. Poussett got up and exclaimed, "After this Mr. Coroner, I should say it was impossible for any steam boat company to obtain justice in any court in this country." (Hissing and a few cheers.)

Mr. Mitchell.—That is a direct imputation on our conduct which I believe has been most impartial during this inquiry.

Mr. Chester, a juror, said he was a stranger among the jury, but he was sorry to say his motives were impugned. Captain Galloway, his fellow juror had said he was prejudiced against steam boats. He was no more prejudiced than the captain was. Here Captain Galloway got up, apparently out of temper, and was about to speak, when the coroner interfered, and threatened to exercise his authority unless order was restored.

Captain Galloway said he would be heard. He had been first accused of favouring steam-boats, and having an interest in them. He came there totally disinterested.

The Coroner (to the Beadle.)—Dissolve the court and clear the room. Gentleman, good night.

The coroner put on his hat and left the room, and this alone put an end to the quarrel, which threatened at one time to become serious.

Mr. Poussett, of Gravesend and Solicitor for the Star Steam-boat Company, was clearly provoking the jury with this question. They, while deciding with only two thirds of their votes rather than unanimously as it should be the case, must have felt tremendous pressure not to upset the steam-boat companies in general that they expressed their real views only after the verdict. This was surely not the only such case but the only one so reported.

The question about steamers included in the Watermen's Act referred to earlier was cleared by the Court and a public notice reprinted in *The Times* of 16th April 1838. That the Watermen's Company shall prosecute reckless navigation of steam-vessels under the 42nd bye-law, under which a speed of five knots between London Bridge and the eastern limits of Limehouse Reach was allowed under a penalty of 5*l.*, being in conformity with 7 & 8 George IV.

A Bill "For better regulating Steam Vessels worked for Hire on the River Thames, between Windsor and Yantlet Creek." was written up under the date of 21st May 1838.¹⁵ This proposed Act had affected only steam-vessels, and only those plying within these limits but not those going beyond them. It gave the Court of Mayor and Aldermen the power to make bye-laws to their regulation "particularly with reference to the speed at which the same shall be worked" including penalties of still the same ridiculous sum of up to 5*l.* for any offence. Not only the owners and

¹⁵ 1 Vict., Bill, 21 May 1838 (409.);

masters of those vessels but any crew employed on deck (so excluding crew working the machinery) shall be freemen of the Watermen's Company unless those freemen cannot be found. I could not find any trace of further debate on this Bill in *Hansard* or *The Times*. It was not passed into law.

Numerous collisions occurred during these years on the River which were only summarised in short articles, being too many to be reported individually and in length. The Watermen's Company furnished the Commissioner's Report on Steam Vessel Accidents, 1839 with a list of accidents on the Thames between May 1835 and December 1838. During these three and a half years 72 steam-boat accidents happened with 120 accidents to individuals of which 43 were fatal and 72 were saved from drowning. This would amount to one accident for every 1,000 steam-boat trips or one fatal accident for every 3,000. The reputation of steam navigation was so much run down that a writer of a pamphlet used these and other figures to save it and to argue against legislative interfering. With an ingenious twist he came to the conclusion that steam-vessels in general were in fact safer than sailing-vessels: he did not take into account accidents and destructions of vessels through collisions, wrecking, fire, and distress since they were common for both steam and sailing-vessels. Only boiler explosions were accountable for steamers.¹⁶

¹⁶ *The Times*, June 10, 1840;

LOCAL NAVIGATION RULES BEFORE 1841.

Local regulations generally concerned the navigation of rivers rather than local coastal waters. They regulated the passing of steam-vessels and sailing-vessels, the speed when passing small craft, and the lights steam-vessels had to carry. In the case of the Clyde and Tay they also regulated the registry of steamer-vessels-owners and in the case of the Clyde only also passenger traffic and safety, manning of vessels, pilotage, &c. The regulations to lights remained mostly very vague. They were mostly common bright lights, all-round lights or nearly all-round lights with plain or white glass of any shape. The prism lens (Fresnel lens or dioptric lens), first installed in lighthouses in 1827 (Chassiron Lighthouse, France, Isle of Oleron¹), was, as it seems, available for ships' lights in the early 1860s and on trial in the late 1860s or early 1870s.²

According to the Report on Steam Navigation, 1831 the suggestions and inventions relating to lights became more numerous since none of such measures in that or later reports were adopted, leave alone any regulations made. The light arrangement for steamers and those occasionally carried by sailing-vessels became more and more a feature not only for making other vessels aware of their presence but also for indicating their course. The local meeting and passing regulations were supposed to transform chaos into order and became the basis for future collision regulations.

1. RIVER AND FIRTH OF CLYDE.

The first commercial steam-boat in European waters, the *Comet*, of 28 tons burthen, was built in 1811/12 at Port Glasgow at Messrs. John Wood and Co. and plied on the River Clyde for eight years. As one of the first two steamers in English waters, the *Margery*, 38 tons burthen, built on the Clyde in Dumbarton in 1814, went to the

¹ Kemp, P., 1993, p. 483;

² H.C., 1873 (184.), pp. 4, 13, 15-18;

Thames after having been worked for a short time on the Clyde. She was towed through the Forth and Clyde Canal and then sailed south along the east coast.³

It is therefore not surprising that the Magistrates and Council of Glasgow were probably the first to draw up such code of regulations for steam-boats which was enacted on October 30, 1816. Very detailed, they contained 12 clauses regarding the vessels' owner's duties, passenger vessels, overtaking other vessels, vessels meeting, anchoring, crossing the lines of others, lights for vessels steaming and at anchor, giving orders, throwing ballast, &c. overboard, the display of these orders and the recovering of damages and penalties.⁴

The overtaking of vessels was regulated in a rather strange way. The steam-vessel to be overtaken had to give way to the overtaking vessel ! The latter one therefore was always free to take the opportunity while the former had to take the risk of the other's action and pay eventually damages and penalties. The starboard-helm rule had to be obeyed for passing each other in opposite directions and there was no specific rule for the arrangement of showing "lights", in the plural form, but it was left to the owners or masters how to exhibit them. Darkness was not nearer defined. There were no regulations as to speed but to stopping the paddles as long as small boats were around for ferrying passengers or goods, to avoid to put them into danger by the surge of the wheels.

Although quite crude this amount of detail was not found in much later regulations for other rivers and in those of Trinity House for the whole country !

While the Magistrates and the River Trustees were engaged in drawing up a new code of regulations a collision occurred between the *Ayr* and *Comet* steam-boats off Kempock-point, Gourock, in the early morning of 21st October 1825 with 62 lives lost. The *Comet* did not carry a light, and did not station a single look-out, while the *Ayr* had a light hanging from the starboard bow. The night was clear but without moon light. At the Admiralty Court proceedings on 21st December the Clyde Pilot James Ross, who was not a pilot on either of these steam-boats that night, said that it was far from being custom to show lights below Greenock, the night being clear or

³ Spratt, 1958, pp. 87-88, 93, 95;

⁴ Riddell, 1979, p. 76;

dark. Below Gourrock they were only hung out in dark nights. He was confirmed by other witnesses.⁵

The new code was signed on December 13, 1825 and was divided into three chapters: "General Harbour Regulations"; "Regulations for Steam-Boats, and Other Vessels, Plying on the River"; and "Police Regulations", altogether 65 (!) clauses. They were made with the power given to the Trustees through the local Navigation Act of 1825.⁶

The harbour regulations (24 clauses) co-ordinated the arrival and birthing of vessels on outside and inside births and along-side crane births, the removing of vessels, ballast, the making fast of vessels, and miscellaneous things regarding the loading of coals, gunpowder, &c. The regulations for steam-boats (27 clauses) ordered that steam-vessels had to be manned by an experienced captain and crew (clause (I.)), that a list of owners trading from this harbour had to be kept by the steam-boat harbour-master who shall register the owners' and vessels' details (clause (II.)), arranged again birthing questions (III.) and (IV.), the furnishing of passenger steamers with gangways (V.), the lighting of passenger steamers for the passengers, safety (VI.), that passenger steamers shall be supplied with a boat according to their tonnage (VII.), and the hours of sailing (VIII.). The clauses (IX.)-(XIII.) and (XVIII.) regulated the meeting, overtaking and passing of sailing and steam-vessels and other craft and made provisions for lights. Steam-vessels meeting in the Clyde in opposite directions above Dumbarton Castle were ordered to slacken their speed when within thirty yards of each other and to keep to their larboard sides. Below Dumbarton Castle they had to pass only starboard to starboard in a distance of at least forty yards of each other (IX.). The regulation to overtaking slower steam-vessels remained principally the same of that of 1816 but concerned now only the upper river between Dumbarton Castle and Glasgow. The overtaken vessel now had also to stop her engine as long as the overtaking vessel was within thirty feet distance (which might throw her out of steerage way), and was only then allowed to proceed slowly until the other had passed (X.). While within the

⁵ *The Times*, October 25 and December 27, 1825;

⁶ 6 Geo. IV., *Cap.* cxvii. An Act for amending Three Acts for enlarging the Harbour of *Glasgow*, and improving the Navigation of the River *Clyde* to the said City; and for other Purposes therein mentioned. [10th June 1825.];

vicinity of 100 yards of the dredger and Trustee's punts the passing steam-vessels had to take off the steam from their engines (XI.). When a steam-vessel or a sailing-vessel met another sailing-vessel beating to windward the former shall pass under the beating vessel's stern in a distance of greater than thirty yards (XII.). Sailing-vessels when on different tacks below Dumbarton Castle shall avoid each other while the sailing-vessel on the larboard tack bears up for the sailing-vessel on the starboard tack (XIII.). During darkness and thick fogs steam-vessels shall reduce their speed to three to four knots (XIV.). During darkness and thick fogs a bell, attached to the machinery, shall be rung. Steam-vessels shall also be furnished with a compass (XV.). It was not self-evident for river steamers to have a compass on board. Clauses (XVI.) and (XVII.) regarded restrictions on towing vessels and the use of footpaths. Clause (XVIII.) required that a regularly licensed pilot shall act as steersman on steam-vessels. One or two persons shall be stationed at the bow as look-out. Between sunset and sunrise and during thick fogs a triangular light shall be hung at the bow or another good visible place on all vessels sailing in the river. Vessels at anchor shall hang the light nearest the deep channel (XVIII.). Timber rafts had to hang out a light next to the deepened channel (XIX.). Clauses (XX.) and (XXI.) concerned vessels lying aground and vessels tracking. Clause (XXII.) regulated very detailed the approach of passenger steam-vessels towards small boats for taking in or landing passengers and the caution to be taken when near them. The person in charge of the steam-vessel shall also take care not to crowd and overload the small boats, &c. (XXII.). No small boat shall approach any steam-vessel as long as the engine is not stopped (XXIII.). Steamers passing other passenger steamers shall slacken their speed when passing them (XXIV.). Only the person in command of the vessel shall give any order (XXV.). Clause (XXVI.) regulated ballast. This code of regulations shall be displayed in the cabin of passenger steamers for the consultation by the passengers. Each of these clauses was enforced with penalties to pay for respective offences. The harbour-police and it's duties were regulated in 14 further clauses.⁷

These steam-boat regulations were a vast improvement compared to those of 1816 which were already far in advance of other river regulations. The issue of moderate speed in fog was also long ignored by regulations both locally and nationally, even

⁷ Port of Glasgow Trustees, *General Harbour Regulations*, 13th December 1825;

internationally and a respective regulation came into operation as late as from 1st June 1863 for steam-vessels only and from 1st September 1880 for both steam and sailing-vessels. Also fog sound signals were no subject for regulation before the Admiralty regulations of 1st October 1858. In advance of other regulations was also that concerning the overtaking of vessels. But it seems strange that the vessel to be overtaken had to secure the safety of the overtaking vessel which was free to take the risk. In the case of trouble or even collision the overtaken vessel was at fault. The regulation regarding passing in opposite directions below Dumbarton Castle was a looser interpretation of those for above Dumbarton Castle as the width of the River and Firth did not need such a stringent order. Clause (XII.) was only an adoption from the well known and recognised rule for open waters: that steamers go out of the way of sailing-vessels and that close hauled vessels have a right of way against sailing-vessels running more free. Clause (XIII.) was a direct adoption. The triangular light meant a single triangular shaped all-round lantern.

Only five months later, on May 12, 1826, the House of Commons printed a set of only five regulations for the river and the Harbour of the Broomielaw. They were principally the same as those of December: they regarded the side of the river the vessel shall keep to when passing another in opposite direction; the slackening of speed when meeting; a clause to overtaking which made it in fact even more dangerous: the vessel to be overtaken still had to give way not towards the embankment but now to leeward which might drive her into midstream, risking collisions with oncoming vessels. The speed in fog was limited to not more than four knots; a bell had to be rung in fog; and a triangular light had to be hung a-head or be placed at another part of the vessel where it could be seen best.

Immediate questions are: for what purpose did the House of Commons print these regulations? Why only five or were there more? Why then did the House of Commons not develop codes for other rivers, at least for the Thames? How was this code possible when even ten years later there was such an opposition against any kind of Act for regulating steam navigation on the Thames?

The regulations and bye-laws for the River Clyde and harbour of Glasgow of 13th December 1825 were repealed in all three chapters with the new code of 5th June 1828. It consisted now of 77 clauses arranged again in three such chapters

(25; 33; 19). In general the additional and re-worked clauses were made more precise. So for example the first clause of the steam-boat regulations required not only experienced crew but said also how many: not less than a master, two deck-men, and a pilot. The only new clause being here of interest was that to two sailing-vessels meeting another sailing-vessel or steamer in opposite direction above Port Glasgow. Each vessel shall haul in their booms when coming within 30 yards of each other and keep to the larboard side. There were some other slight changes: the border for the regulation regarding overtaking was taken down-river from Dumbarton Castle to Port Glasgow. The regulation for pilots was expanded towards sailing-vessels of at least 6ft. draught or of and above 40 tons register. The "triangular light" was replaced with a "suitable light". The berth between vessels meeting and passing in opposite direction was reduced from at least 40 yards to at least 20 yards.

Another set of regulations for steamers and other vessels was put into operation in 1834, consisting of at least 61 clauses. It dealt with the manning of steam-vessels, registering of the owners, masters, pilots, and crew, with supplying passenger steamers with small boats and its equipment, with sound signals, fire fighting appliances and gangways, with berthing passenger vessels, the manner how to pass and to overtake steamers as well as sailing-vessels, with steam-tugs having sailing-vessels in tow, and with vessels aground or at anchor. Eight clauses alone regulated the landing of passengers and the ferry-boatmen. It further dealt with sailing-vessels having to take precautions when passing other vessels, with speed at building sites, with meeting of sailing-vessels, speed in fog, regulations to towing and registering the persons employed therein, with pilots and look-outs, and with exhibiting a light.

Clause (XXXVII.) demanded a bell in a belfry to be rung in thick fogs and darkness and also a compass. The starboard-helm rule applied again to vessels meeting in opposite directions (clause (XLI.)) and a berth of at least 20 yards had to be given to the other vessel when passing her below Dumbarton Castle. The steamer which was going to be overtaken had to keep to the larboard side again as in the earlier regulation (XLII.). That for overtaking other vessels was similar (XLIII.). Steamers and sailing-vessels having the wind at large shall give way to sailing-vessels beating to windward and shall pass astern of that vessel (XLV.). The rule for sailing-

vessels meeting on opposite tacks applied to those navigating below Dumbarton Castle (LV.). The Speed of steam-vessels had to be limited to three to four knots during darkness and fogs (LVI.). The regulation as to lights was as imprecise as it was in the 1816 regulation, it also demanded only one bright light (LXI.).⁸

These regulations were so far in advance of other local regulations that one should wonder why these were not taken as example for drawing up others, at least for the Thames which was tenfold crowded as the Clyde and where one comparatively poor Bill after the other failed and was rejected by the House of Commons.

2. RIVER AND FIRTH OF TAY.

The Minute Book of the Perth Steam Packet Company of 21st June 1824 contained regulations enacted by the judges of the High Court of Admiralty as consequence of inconveniences and dangers to which passengers and goods of steam-boats on the River Tay were exposed through competition and improper conduct of masters, pilots, and crew. This code was an agreement between the only two then existing companies: the Perth Steam-packet Company and the Tay Steam-packet Company. A body of River Trustees did not exist as it was the case for the River Clyde. In 1825 the two companies amalgamated into the Tay Steam-packet Company.⁹ The code consisted of ten clauses which were signed on 19th June 1824. The owners, masters, and crews of Tay steam-boats had to be registered with the harbour-masters of Perth and Dundee. Slower vessels shall be overtaken on the starboard side after the same gave way to the overtaking vessel. When coming towards each other in opposite directions they shall pass on each other's starboard side. Lights shall be fitted a-head and a look-out stationed in the bow. Vessels at anchor shall exhibit lights at the side where others shall pass. Paddles shall be stopped when small boats were approaching until they were completely clear of the swell of the steamers. No other person than that in charge of the vessel shall give commands. This regulation shall be displayed at conspicuous parts of the vessel. The last clause regulated the recovery of penalties

⁸ H.L., 1839 (181.), pp. 75-78;

⁹ Personal communication with Colin Bain;

and asked the passengers to report any breach of the regulations to the Admiralty Court in Edinburgh.¹⁰

The preamble of the rules implied that they were made for the same reasons which became so unbearable on the Thames and where around ten years later every single Bill to regulate this state of steam navigation failed and bye-laws were not properly enforced.

These regulations, with few exceptions, were virtually the same as those of the River Clyde of 1816. It was nearly a word for word copy, probably to achieve an uniform style of rules, easy to recognise. This was not always the case for local river regulations as it can be seen later on.

There seemed to have been no other regulations until these fell either into disuse or was taken over by the system of lights used on the River Humber by steam-vessels working between Hull and Leith or Dundee.¹¹

3. RIVER TYNE.

In 1835 regulations of 31 clauses were made for the River Tyne. It regulated mainly the passenger traffic, the timetables, the times and turns of steam-packets at the quays, the towing of vessels, the charges and landing of passengers, the timekeepers duties, fines, &c. Clause (2.) ordered a difference of half an hour between the departure of the packet boats and signals with a bell when leaving the quay, obviously to warn other vessels. Clause (6.) ordered that when two vessels meet in the river or elsewhere both shall port their helm and stop their engines. During night time a red lantern shall be hoisted or a penalty of 5s. be paid of which one half goes to the informer. According to clause (8.) these rules were made by a committee of seven steam-packet proprietors of Newcastle and Shields on a rotatory scheme which allowed every member to sit for one year with half of the members changing every six months. They met on an afternoon once a month to deal with the steam-packet business and any complains brought before them.¹²

¹⁰ Minute Book of the Perth Steam Packet Company, Minutes of 21st June 1824;

¹¹ See below this chapter;

¹² H.L., 1839 (181.), pp. 162-63;

Racing of steam-boats for competition was always a problem on the Thames and several times during inquests remedies were discussed. Here this remedy was ordered by a bye-law. The rule of porting the helm when meeting was unique as river rule. On the Forth, Clyde, Humber, and Mersey the helm had to be starboarded. It had also to be followed in the English Channel.¹³

4. RIVER HUMBER.

The navigation rules for the Humber were so far the last local code coming into operation but in terms of lights they were quite a-head of other areas.

The first notice of regulations I could trace was that of the 10th November 1836. As the preamble said this code was drawn up and agreed to by a meeting of masters and commanders of steam and sailing-vessels in the Trinity House, Hull two days previous and afterwards approved and ordered by the Elder Brethren of that House.

Steam-vessels shall keep to the larboard side of the River Humber and all connected rivers (clause (1.)). They shall pass on each other's starboard side when on contrary courses (2.). Steam-vessels shall go out of the way of sailing and rowing-vessels (3.) and reduce their speed or stop their vessel when passing a rowing or sailing-boat so as to cause no alarm (4.). Steam-vessels under steam even when assisted by their sails have to obey the above orders, and consequently count as steamers (5.). Clause (6.) regulated the exhibition of a lantern with three glasses: the starboard side being red, the front being clear, and the larboard side being green. This lantern had to be displayed at the mast between sunset and sunrise together with a bright lantern at the end of the bowsprit. The last clause ordered a light ready for exhibition for vessels at anchor in case of emergency situations.¹⁴

Edward Rheam, of the Humber Union Steam Company, Hull, said in his answer in the Report on Steam-Vessel Accidents, 1839 that there were not many serious collisions between steam-boats and other craft on the River Humber due to the requirement of carrying this mentioned lantern under the forecross-trees. In some

¹³ See chapter on Steering Regulations for Open Waters Before 1840;

¹⁴ H.L., 1839 (181.), p. 191;

cases when the river was crowded blue lights were occasionally burnt when passing through that part.¹⁵

The masters and commanders of steam-vessels did not agree to having a triangle of lights displayed, they might not even have considered such arrangement. It was perhaps too early yet for it was not practised by many masters or even owners. The City of Dublin Steam Packet Company, D.W. Evans, and the General Steam Navigation Company were exemptions.

Four years later, on 25th November 1840, the Trinity House, Hull published a new code of regulations.¹⁶ The Preamble stated that the first and second clause were similar to those which were already adopted by H.M. Vessels and recommended by the Admiralty in a notice of Trinity House, London of 30th October 1840 for general use.¹⁷ In fact they were word by word copies of those from London but made for the Rivers Humber, Ouse, and Trent only.

Compared further the two Humber regulations had several important differences. In the regulation of 1836 clause (1.) ordered steam-vessels to keep on the larboard side of the river. This was changed in two ways for the new regulation of 1840. While in that of 1836 it was the side of the fairway to which the vessels had to keep when meeting the new rule was loosened as it now only required the vessels to pass at a certain side of each other wherever they were in the river. This side had now to be the larboard side.

In the regulation of 1836 the steam-vessels shall starboard their helm "if their courses shall lead them near each other". But in that of 1840 they only shall obey the port-helm rule if they "must unavoidably and necessarily cross so near that by continuing their respective courses, there would be a risk of coming in Collision". In other words a risk of collision had to be established first to justify the porting of the helm. This was the other important difference as it reduced action to properly defined cases and therefore gave more safety. On the other hand the port-helm rule was very objectionable as long as it was compulsory.¹⁸ This new code of Trinity House, Hull now fitted the nationally recognised code of Trinity House, London made four weeks

¹⁵ H.C., 1839 (273.), pp. 114-15;

¹⁶ National Maritime Museum, Library, 342.537 627.72(427.4);

¹⁷ *The London Gazette*, November 3, 1840, pp. 2410-11;

¹⁸ See chapter on Steering Rules Before 1847, but also that on Steering Rules Before 1840, and on the Admiralty Regulations of 1848;

before. All other five clauses of 1840 were nearly word by word copies of the earlier regulations. The final one repealed the regulation of 1836 and demanded the persons in charge of steamers and sailing-vessels to strictly obey the new regulations.

Numerous witnesses recommended in reports a triangle of three lights which was also already confirmed through experience as a model to avoid collisions and already established practice for some shipping companies and individual vessels. But the Trinity House, Hull renewed the order of having a single tricoloured light, may be because it did not want to change established custom or because it did not want to be responsible for some structural changes and expenses for the shipping companies before it was so ordered from a higher authority. A single light, already in use, could easily be hoisted and exchanged against other lights for other local requirements.

As it was quite usual to take the local light arrangement further into coastal waters, as long as the lights were not extinguished for expense reasons, it seems not surprising that this three coloured lantern combined with the bright light at the end of the bowsprit was in use also along the east coast on steam-vessels working between the Humber, the Firth of Forth, and the Firth of Tay. May be also along the coast towards the South. Another regulation that steam-vessels when passing deep draughted vessels shall reduce their speed was sent from Kingston-upon-Hull to Leith in 1842. This was said so by William Brown, Mate of the steamer *Pegasus*, which carried these lights, then of the Hull & Leith Steam Packet Company.¹⁹

¹⁹ H.C., 1843 (581.), p. 18; Bain, 1996, pp. 303-04;

**STEERING RULES AND MODES OF EXHIBITING LIGHTS
AS PRACTISED IN AND SUGGESTED FOR OPEN WATERS
AND FOR RIVERS IN GENERAL,
WITH INVENTIONS OF LAMPS &
SUGGESTIONS FOR FOG SIGNALS BEFORE 1840,
ALSO
THE REPORT ON STEAM-VESSEL ACCIDENTS, 1839 (181.).**

1. STEERING RULES AND SUGGESTIONS.

In a collision case in 1820 in the *Swyn* the Judge Lord Stowell pointed out the maritime law before the jury of the Admiralty Court:¹

—If a ship going in her direct course, and with all the force and velocity that belongs to that course, under all the favourable circumstances of wind and weather, runs a ship down by striking on her side the law is, that the ship so pursuing her course, under such circumstances, is to exculpate herself from a charge of an unlawful aggression: for, at any rate, she is the aggressor in point of fact.

But also:²

that where a light ship comes into collision with a heavy one, the conclusion is against the aggressor: a light ship is more easily diverted from a course that is likely to bring hazard to it; and therefore, being with less difficulty removed from a situation likely to cause hazard to it, a higher degree of responsibility as to taking such measures as may preserve her, attaches to her.

A witness in a case in 1828 stated what was then, and already long before, customary:³

If a vessel is going close-hauled to the wind, and another meeting her is going free, the rule at sea is for the vessel meeting her to go to leeward; and the reason of it is that otherwise the vessel going to windward would lose her position, and could not get in again without another tack, which would be an inconvenience to her, and not to the vessel going free.

¹ *The Times*, December 5, 1821;

² *Ibid.*;

³ Marsden, 1891, p. 340;

The Court remarked:⁴

The ship which has the wind at large may go either to leeward or to windward; but, as a general rule, she ought to expect that the ship which is close-hauled will keep to windward, and therefore she ought to go to leeward, unless it is quite clear that she can go to windward with safety.

These regulations worked fairly well as the relatively slow approach of two sailing-vessels allowed enough time to act appropriately.

So far for two sailing-ships meeting and crossing their courses. In cases where a steamer met with a sailing-vessel it was generally accepted that the former gave room to the latter because of her greater manoeuvring capability. As a general rule for steamers meeting sailing-vessels in open waters M. Poppelwell, Surveyor, suggested that a steamer should go to windward of a sailing-vessel. The steamer, because of her being independent from wind, had the possibility of turning her head into the wind while it was equally convenient for the sailing-vessel to bear-up and having the wind more at large than before.⁵ But in cases when a steamer was beating against a gale while the sailing-vessel was running free Commander William Allen, of the *Royal Adelaide* between Leith and London, recommended that the sailing-vessel should give way to the steamer for the steamer was compelled to keep the bow against the wind for not becoming unmanoeuvrable.⁶

Due to the lack of an universally recognised rule for two steamers meeting and passing in coastal and open waters the masters or other persons in charge of the vessel simply adopted their home port rules for that purpose although it was known that the regulations were contradicting each other. This confusion resulted for example in the *Royal William - Tagus* collision on 7th November 1837 off the Isle of Wight and the *Thames - Shannon* collision in October 1838 off Brighton. In the English Channel it was custom for vessels going down-Channel, going westward, to keep inshore by porting the helm while vessels working out of the River Mersey and the port of Liverpool starboarded the helm in meeting situations.⁷

⁴ Marsden, 1891, p. 340;

⁵ H.L., 1839 (181.), p. 105;

⁶ Ibid., p. 88;

⁷ Ibid., pp. 41-42;

William Simons, Shipbuilder, wrote an account on 30th January 1836 in the form of a letter about the collision between the steamer *Antelope* and the sailing-vessel *Elizabeth* to William Martin, the Chairman of the Seaman's Friend's Society. The collision took place 12 days before in the Clyde. The *Elizabeth* was run down by the steamer which had lights up. The account of her salvage occupies a few pages before he comes to his suggestions on improving steam navigation. The second of seven concerned the steering wheel which should be slipped in narrow waters and replaced by a tiller "as is now practised on the River Thames;" (?) because many crew members were brought up in the coasting trade where only tillers were in use and do not know how to work a wheel. Valuable time is lost while correcting a mistake.⁸

2. RULES AND SUGGESTIONS FOR DISPLAYING LIGHTS.

Sailing-ships normally did not carry any lights. If lights were shown at all on steamers they could be of any description. There were no regulations or unwritten rules of how and where to show lights whatsoever in coastal waters, open seas, or rivers with some exemptions for the latter. This changed only with the Admiralty order of 1848.

Without having such rule it could even less be expected to have any regulations for the size, the shape, and the colour of the lantern and the glass or about screening the rays. This was also left to the owners and masters of the vessels or to other people interested and concerned which led to a number of inventions of lanterns for indicating the speed of steamers, their relative positions, and their courses.

The Report on Steam-Vessel Accidents of 1839 contained a letter by Captain F.T. Michell, R.N., in which he stated that during his time of service, some time before this letter (April 1839), the vessels exhibited three lights at night to denote their course: one at the bow or bowsprit-end and two, one above the other, at the gaff-end or stern.⁹

This arrangement must have been practised some time after 1816, otherwise it had probably been mentioned in the *Instructions* of that year. This mode of exhibiting light signals was far from being as useful as Lord Howe's signals were as either light

⁸ Simons, 1836, pp. 12-13;

⁹ H.L., 1839 (181.), p. 159;

can only be seen, unless some sails were not set, or both lights only when about abeam of that vessel.

The earliest invention made public through the Society for the Encouragement of Arts, &c. was that of John Hawks, of Duck's-foot-lane, Upper Thames-street, London, of a revolving light in his letter of June 7, 1826 to the Secretary of the Society. Initiated by the fatal accident to the steam-packet *Comet*, which came into collision with the *Ayr* in the River Clyde in 1825 with a loss of 62 lives, he wondered that this incident did not bring in a single suggestion for the improvement of navigation in general. He believed this loss of life attributable to having no light or by showing it from improper places.

His invention consisted of a spindle with two arms connected by cross bars at either end which held the two lanterns. A third bar was connected through a crank to the spindle and two further cranks to the cross bars to keep the globular lanterns in a vertical position to avoid them being shaken about by the wind or the rapidity of their movement. A pulley and rope connected the spindle, which was supposed to be mounted to the chimney or any other vertical bar, to the steam engine. Another advantage would be to colour the stern half of one of the lanterns in a distinguishable colour to indicate the direction the steamer was going. Since sailing-vessels sometimes hoist a triangular light this revolving light would distinguish them from steamers. The Margate steam-packets shewed for the last two years triangular lights as stated in a letter by J. Miller, Secretary to the Margate Steam-packet Company, to John Hawks.¹⁰ Triangular lights were for example required for steamers on the River Clyde.

There was nothing said to the size of the lanterns or length of the bars but the drawing shows that the arrangement was of considerable size. The full circle or narrowness of the ellipsoid would give a rough indication of the course the vessel was going. Mr. Hawks was given the Large Silver Medal of the Society.

According to John Lane Higgins, Esq., 370 Oxford Street, London, in his letter to the Society on November 27, 1827 the revolving light of Mr. Hawks was not publicly recognised. Mr. Higgins presented another revolving light to the Society developed by himself.

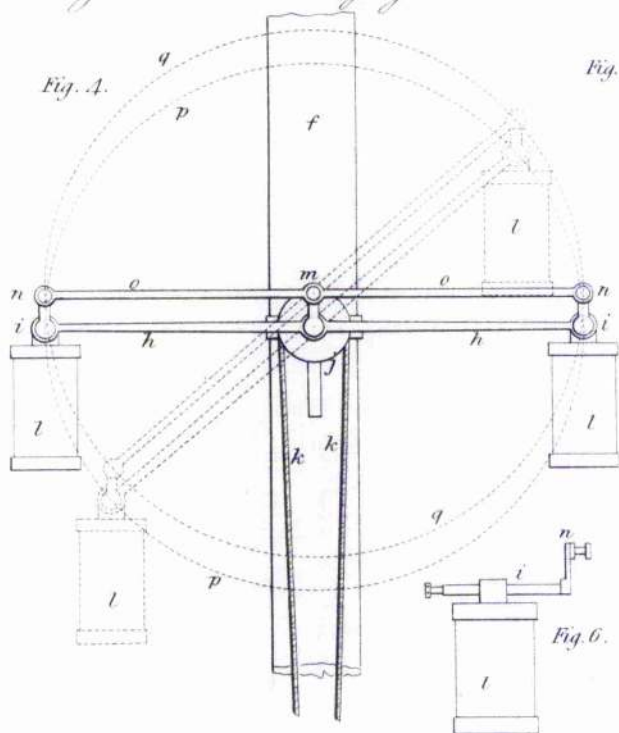
¹⁰ *Transactions*, Vol. 45 (1827), pp. 136-39;

Reference to the Engraving.—Plate VII.

Fig. 4, a front view; fig. 5, a side view. *ff* the chimney of the boat, or a strong upright spar; *g g* a projecting horizontal spindle, on which the frame which carries the lights revolves; *h h* two arms connected by the cross bars *i i*, to which are fixed the lanterns *l l*; *o o* a connecting rod which receives its motion from the spindle *g*, by means of the crank *m*, and communicates it, by means of the cranks *n n*, to the bars *i i*, and consequently to the lanterns [fig. 6 shows separately one of the lanterns with its cross bar and crank]; *j* is a pulley over which passes the band *k k*, which is to be connected with the steam-engine in any convenient manner, and by which a rotatory motion is given to the lanterns. The ends of the bars *h h* revolve in the lower dotted circle *p p*, while those of the bar *o o* revolve in the upper dotted circle *q q*; the consequence of this arrangement is, that the lanterns will be fixed so as to prevent them from being shaken about by the wind, and will retain a vertical position at every point of their revolution.

From: *Transactions*, Vol. XLV, 1827, p. 137.

Mr. J. Hawks Revolving lights.



Mr. C. W. Hawk & Son

His arrangement was composed of three lanterns two of which were fixed by the means of ropes and pulleys to two arms, one on each side of the chimney. A pulley sitting on a spindle between the two upper arms had a mounted crank with the third lantern hanging from it. A rope connected that pulley to the engine and set the third lantern in motion. Another, weighted, rope kept it perpendicular, itself prevented from swinging about by an iron loop just above the deck. All lanterns were closed on the rear quarter by reflectors but were open to three sides. "These two side-lights are red, and the revolving one green", the red ones fixed so far to the rear half of the chimney that all three lights described not too flat a triangle.

The green light, again, described only a full circle to other vessels as long as they were right a-head. If one of the vessels beard up the green light approached the off red light and separated from the nearer one. At the same time the circle of the green light developed into an ellipsoid until the off red light disappeared behind the chimney and the green light developed into an only up and down movement before the red lantern while the observer approached the beam of that vessel. If two or three lights were only hardly visible the other vessel was behind the beam.¹¹

This was so far the first case of using differently coloured lights to enable other vessels to judge of its course and was a real and well thought improvement to Mr. Hawks' light. Mr. Higgins got the Silver Medal for his invention. I could not find a reference yet that this engine has been sold and used.¹²

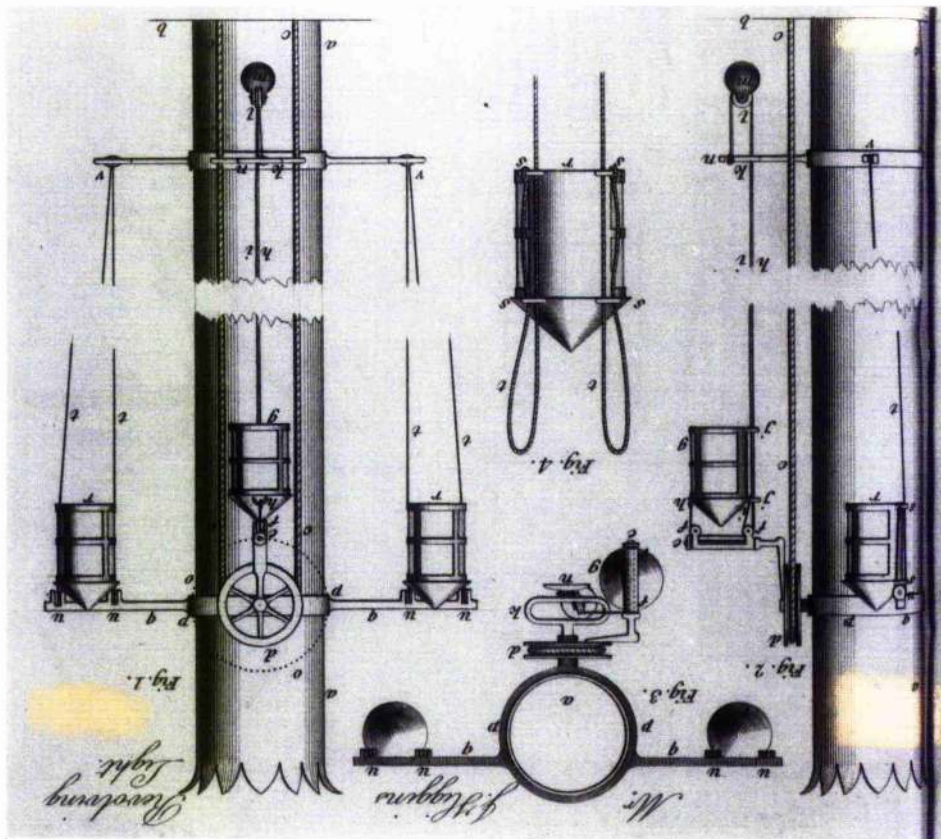
In 1832 Lieutenant J.H. Bellaires, R.N., submitted to the Lords Commissioners of the Royal Navy a plan for lights lighted through an apparatus for generating gas. The proposed arrangement came that of today astonishingly near: a brilliant white light at the mast-head and one light on each beam of the vessel whereby the starboard light shall be red and the larboard light white; they shall be fitted with elliptic glasses in the manner that all three lights could be seen from right a-head but only two if seen from the bows to the quarters. Oil may be substituted for gas if used with powerful reflectors. The acknowledgements from the Lords Commissioner, as he thought, would secure him the right to priority of invention. In spring 1836 an order was issued for fitting a steamer (an Admiralty steamer ?; for trial purposes ?) with lights similar to those of Lieutenant Bellaires. He brought his system again to the

¹¹ *Transactions*, Vol. 46 (1828), pp. 41-43;

¹² See also the Report on Steam Navigation, 1831 and the evidence given by John Higgins;

*Reference to the Engraving of Mr. J. HIGGINS'S Revolving
Light for Steam-Boats. Plate IV.*

Figs. 1 and 2, front and side elevations; and fig. 3, a bird's-eye view. *a a*, the upper and lower ends of the chimney, the middle part being broken away to bring them nearer together; *b*, the deck; *c c c c*, a band or rope to communicate motion from the machinery below deck to the wheel *d*: this wheel carries an arm *e*, on which the two sheaves *f f* move freely; to them are slung the lantern *g*, by two ropes *h h* and *i i*: they both pass together through the eyes *j j*, then through the loop *k*, and under the pulley *l* of the weight *m*; they are then made fast to the cleat *n*. These ropes serve to raise and lower the lantern, and also, by the weight *m*, which hangs on them, to secure the upright position and prevent it from swinging while being carried round on the arm *e*: this arm revolves in the dotted circle *o o*. The weight *m* rises and falls half as much as the lantern. *p p*, an iron hoop round the chimney, from which projects an axis for the wheel *d* to turn on; and also the two arms *q q*, to which are slung the two stationary lanterns *r r*. Fig. 4 shews the back of one of these lanterns; they are furnished with four eyes *s s s s*. Two ropes *t t* are made fast to the bottom eyes; they pass through the upper eyes over the pulleys *u u*, placed in the arms, then return through the upper eyes and the lower eyes down to the cleats *v v*. These serve to raise or lower the lanterns, and also to prevent their being blown or shaken out of the vertical position. These two side lights are red, and the revolving one green; and this green one, as shewn in the plan, fig. 3, is so much in advance before the others, as only to appear to revolve between them when you are right a-head and in their way; but if the course of the vessel deviates to the right or left of you, the green light approaches the off red one and separates more from the near one, by which you may judge of its course; and if it deviates still more, it keeps eclipsing the off light; and when going right across your view, the chimney hides the off light, and the green revolving one appears only to rise and fall; and in all cases, the moving light is fore and the stationary one aft, as the reflectors placed at the back of the lanterns prevent their being seen in a stern view, when the vessel is of course going from you.



Admiralty's attention who only replied that Mr. Bellaires should not waste more time on this subject. But having shown his arrangement to naval friends they were in favour of it. He also got a letter of thanks from the General Steam Navigation Company. It therefore seemed that this system had been adopted by them.¹³

In a letter to the editor of *The Nautical Magazine and Naval Chronicle* of 21st February 1837 George Stebbing of Portsmouth proposed a simple system of lights to indicate to other vessels if a steamer was going up-river and into harbour or going down-river or out of harbour: a green light on each bow in the first case, a red light on each bow in the second case, and a common bright light when laying before anchor. He developed this plan more than three years ago and submitted it to the Lord Commissioners of the Admiralty when visiting Portsmouth in October 1835.¹⁴

The City of Dublin Steam-packet Company ordered for their steamers from 1st January 1834 a system similar but more thought over than that of Lieutenant Bellaires. The idea was to show a triangle of lights to other vessels only when stem-on or nearly so to indicate that some radical action should be taken to avoid collision.¹⁵ The white light on the mast-head was so screened that it shewed over an arc of the horizon of 180°, ¹⁶ from right a-head to a-beam of each respective side, and the lights forward of each paddle-box were so screened as to be visible from right a-head to about 30°¹⁷ or 35°¹⁸ on their respective sides. While the clear lights were of a solid glass lens,¹⁹ the larboard light had a hollow glass lens filled with a red mineral solution.²⁰ This triangle of lights, visible from right a-head or nearly so, diminished to two lights to a vessel when it stood on either bow and shewed the mast-head light only when it stood between the bow and a-beam. The different ways of screening the lights gave so a very good reference and indication of the relative positions of the vessels to each other. In the Report on Steam-Vessel Accidents, 1839 this system was valued by the commanders of the Company's vessels and 20 of them signed an explaining certificate. Since this mode was adopted from 1834 no collisions had taken place

¹³ *The Times*, November 1, 1836;

¹⁴ *The Nautical Magazine and Naval Chronicle, For 1837*, (Vol. I), p. 488;

¹⁵ *The Nautical Magazine of 1834*, Vol. III, p. 115;

¹⁶ H.L., 1839 (181.), p. 13;

¹⁷ *Ibid.*;

¹⁸ *The Nautical Magazine of 1834*, Vol. III, p. 115;

¹⁹ H.L., 1839 (181.), p. 13;

²⁰ *Ibid.*, p. 68;

between the Company's steamers although they made 1600 channel crossings each year (C.W. Williams, Managing Director to the Company). They recommended this system for all steamers while sailing-vessels should show a light in pilot waters, also that a rule should be established about the side vessels have to pass each other. The lights were much stronger than those of later times for they were visible for eight to ten (mast-head light), four (starboard light), and three miles (larboard light) in clear weather.²¹

This principal system of a triangle of screened lights was only improved in 1896 by an Order in Council of 27th November when another light aft of the foremast-light and at least 15ft. higher was first made optional and later ordered.²²

During the session 1834-35 of the Society for the Encouragement of Arts, &c. G.H. Pearce, 6 Brunswick-Terrace, Blackwall, brought forward his invention of a revolving lantern for communicating to other vessels not only the presence of a sailing-ship but on which tack it was on, and consequently the approximate direction of motion, or if that vessel was at anchor. A cylindrical shaped case eight inches in diameter and nine inches high (without hood) with two clear lenses so fixed that their axis' were slightly diverging carried the burner and reflector and an inner frame. This inner lantern contained three single coloured glasses and was made to revolve on an axle by means of a handle and index to show a plain light when sailing before the wind, a red light when on starboard tack, a green light when on port tack, and a combined red and green light when laying at anchor or hove to. A clamp secured the inner lantern to the outer casing until a change of lights was required. Within three months Mr. Pearce sold over a hundred of them before its presentation to the Society. He was given the Silver Medal for this invention.²³ His lantern was several times referred to in the Report of 1839 as being effective and in general use.

While that lantern was made for use on sailing-ships Mr. Pearce drew the Society's attention around two years later (session 1835-36) to his lantern for steam-vessels. Arguing that the common bright light as presently in use could be misinterpreted as a shore light and that the present light did not distinguish between steamers and sailing-vessels, an important factor when considering the speed of

²¹ H.L., 1839 (181.), pp. 48, 50;

²² *The London Gazette*, December 1, 1896, pp. 7093-97;

²³ *Transactions*, Vol. 50 (1834-35), pp. 104-06;

The external case *a a* is about eight inches in diameter, and nine inches high, exclusive of the hood and ventilator. Rather more than one-third of this case, or from *b* to *b*, is open, and is closed by the door *b b*, having in front two lenses *c c*. Within this case is the lantern *d e f*, which consists of a top and bottom circular plate connected by the three bars *d e f*, forming a skeleton frame with three openings. These are respectively occupied by the three doors *d e*, *e f*, and *f d*, each of them glazed in three pieces, and each hung with hinges, and secured by a bolt. One of these doors is glazed with three pieces of plain glass, another with three pieces of red, and a third with three pieces of green glass. The lamp *g* is placed in the centre, and the reflector *h* behind it. The lamp, however, stands upon, and is solely connected with, the bottom of the external case. The bottom of the inner lantern has a circular hole, which loosely embraces the stem of the lamp.

From this description it will be evident, that if the inner lantern *d e f* be made to revolve, either of the three glazed doors, or parts of any two of them may be made to intercept the light between the lamp and the lenses. This is, accordingly, done; the top of the inner lantern is connected with a hollow shaft which rises out of the apex of the external case, and has a handle and index by which it is turned, and by which its position is indicated.

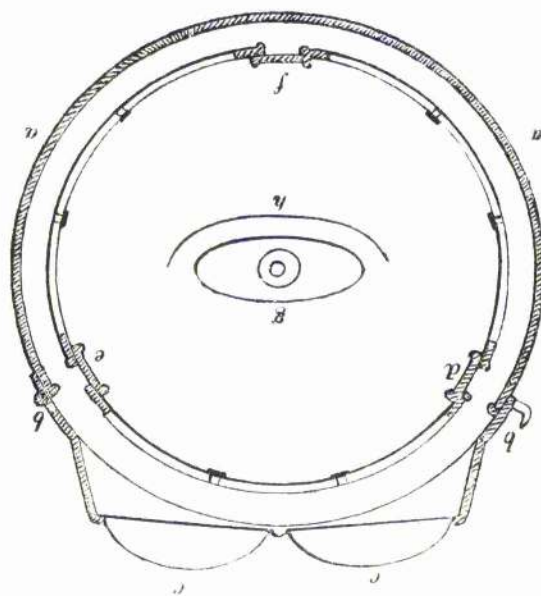
On the outer case is a brass engraved plate, shewing the system of signals which the lantern is intended to exhibit—thus:—

Before wind	Plain.
Starboard tack. . .	Red.
Larboard tack . . .	Green.
Anchor	Red
or	and
Hove to	Green.

In the outer case, also, is a clamping-screw, which bears against the rim of the inner lantern, and by which the latter, after being adjusted to shew the required light or signal, can be fixed, till a change is rendered necessary.

Mr. Pearce's revolving hand held Signal Lantern, of
1835?

From: *Transactions*, Vol. L, 1836, pp. 105-06.



steamers, he constructed a lantern of square cross section with four burners, reflector, and three glasses: the front one plain, the starboard one red, and the larboard one green. This lantern was also already sold to about twenty steamers for 5*l.* each to the perfect satisfaction of their masters. Mr. Pearce was again awarded the Silver Medal although the Society questioned the usefulness of coloured lights for indicating the relative positions of approaching vessels but recognised his efforts and success he already achieved.²⁴

According to Captain D.W. Evans in a letter of 25th June 1846 to the Secretary of the Admiralty he proposed "upwards of ten years ago" a system of a red light on the starboard bow, a green light on the larboard bow, and in addition for steamers a common light at the foremast-head which was soon afterwards adopted experimentally by H.M. Packets on the Milford Station and was still in use at the time of this letter.²⁵

Captain Michell reprinted in his above-mentioned letter Captain Evans' suggested mode of exhibiting lights: that all steam-vessels shall exhibit after sunset a red light on the starboard bow, a green light on the larboard bow, and a common light on the foremast-head; that all sailing-vessels shall carry the same lights and shall exhibit them on the approach of steamers and sailing-vessels; that all vessels at anchor shall exhibit a bright light at their mast-head; that if a red light was seen a-head the helm shall be starboarded, if a green light was seen a-head the helm shall be ported, and if both lights were seen a-head the helm shall be starboarded; that if both vessels were approaching each other in a direct line by day each vessel shall starboard its helm; and that these suggestions shall only be compulsory for times of peace, in war times it should be left to the discretion of the master.²⁶

It would be necessary to define the word 'a-head' quite strictly or to exchange the helm orders.

A letter to the editor of *The Nautical Magazine* with date from 9th July 1836 was signed by "A. Skipper" who commented on the suggestions made by the Pilotage Committee. He was right by pointing out that the lights exhibited were confusing as long as they were not screened so as to throw the rays only from a-head to a-beam,

²⁴ *Transactions*, Vol. 51 (1835-36), pp. 119-20;

²⁵ *The Mariner's Mirror*, Vol. V, (1919), pp. 124-25;

²⁶ H.L., 1839 (181.), p. 159;

also that two lights so near to each other as proposed for the larboard yard-arm would in a distance appear as one light. He then submitted his own system of exhibiting lights: a white light at the fore-stay and a red and a green light at the starboard and the larboard paddle-box respectively as low as possible. It is to be assumed that his proposed lights were screened according to the comments above but it was not further described. A. Skipper wanted to see this arrangement applied to all coastal waters and not only to pilotage waters. It would not make sense at all to put the responsibility on steamers for avoiding sailing-vessels and vessels at anchor when there were no rules or regulations to distinguish them and to make them recognisable: he suggested the system of and referred to the revolving lantern of Mr. Pearce, which was already well established.²⁷

With date from 21st November 1837 Lieutenant J.H. Bellaires, R.N., sent a letter off to the Coastguard station of Craster, Northumberland, in which he proposed an arrangement for lights and fog signals, both for steamers. He got approval from many naval friends and Monsieur de Rosamel, the French minister for the Navy and the colonies, who submitted this suggestion to a committee for the following plan. One bright all-round light at the foremast-head or two semi-circular lights hoisted up the double jack-stay were combined with a light at the fore-end of each paddle-box to a triangle of lights which could be seen by a vessel from right a-head, but only two were visible when seen from the bows or from a-beam. A light at the aft-end of each paddle-box or at each quarter were arranged to a triangle with the mast-head light when seen from right a-stern but only two were visible when observed from the quarters. The starboard lights shall be of a bright red achieved by a mineral liquid filled into a hollow glass lens. As described clearly the paddle-box fore-lights shall be seen over an arc of 90° through two lenses, one throwing the light forward, the other a-beam. The aft-lights shall be composed of one lens only which therefore should have covered around 45° to the keel-line.²⁸

A long statement was given by Captain Edward Chappell, R.N., of the H.M. Dublin Mail Steam-Packet Office, in the Report on Steam-Vessel Accidents, 1839. As collisions were the greatest source for disasters he called for an Act of

²⁷ *The Nautical Magazine of 1836*, Vol. V, pp. 488-90;

²⁸ *The Times*, November 1, 1836; *The Nautical Magazine and Naval Chronicle, For 1841*, (Vol. V), pp. 564-65; see below for his fog signals;

Parliament for passing and overtaking-rules. The vessels should pass starboard to starboard and that to be overtaken should change her course to larboard and even stop her engines to give the overtaking vessel ample room.²⁹ In rivers each vessel should keep to the shore on their larboard side. An Act for regulating the lighting of ships at night would be of most use. He could make out eleven different ways of exhibiting lights at the port of Liverpool alone, from a single bright light at the foremast or chimney to a maximum of five lights: one at the foremast, one at each paddle-box (both being clear or one clear, the other red, blue, or green), and one at each quarter. Resolutions for making a bye-law, brought in to the Corporation of Liverpool by steam-ship owners, agents, and masters, were not carried into effect.³⁰

After consulting and inquiring all commanders under his supervision they unanimously agreed to the following system: one strong bright light at the foremast-head, a strong bright light in a light room at the starboard paddle-box, and a strong red light in a light room at the larboard paddle-box. Each paddle-box light shall be fitted with two lenses of at least 36in. circumference (each lens ?) so as to throw the light directly a-head and abeam respectively. A mineral liquid was to be preferred to a vegetable one to fill the hollow lens of the larboard paddle-box. Two coloured side-lights would be ideal but the colour dimmed them to the point where blue and green were hardly visible, red was left as the only acceptable colour. The lights shall be screened with "a projection or shade in a line with the keel, and on the inside for a few feet before each bow-light" as not to be visible on the opposite bow and to avoid blinding the look-out.³¹

In this suggestion the (outer edge of the) wick, as source of the light, or the lens had thrown rays in quite an angle across the keel line as chocks were only mentioned from 1868.³² But this angle was either too small to be considered as not being in line with the keel but it was more likely that 'across the bows' meant literally across the stem.³³ It was even more likely that no one thought properly about this problem of crossing rays and dark lane. But a small angle of rays crossing over the keel-line was necessary to show a triangle of lights to the meeting ship.³⁴

²⁹ The same pattern as in the Clyde regulations;

³⁰ H.L., 1839 (181.), p. 68;

³¹ Ibid., pp. 68-69;

³² H.C. and H.L., 1895 [C.—7908.-I], p. 21;

³³ Ibid., pp. 15, 17, 21; see chapter on Admiralty Regulations, 1848;

Sailing-vessels should carry a light aloft in coastal waters in the track of steamers. The lack of such light was the main cause of collisions between sailing-vessels and steamers because the steamer, due to her speed, could not make them out before it was too late.³⁵

Captain Henry Mangles Denham, R.N., F.R.S., and Consulting Marine Surveyor for Liverpool and other ports,³⁶ gave a statement about the variety of lights at the port of Liverpool similar to that of Captain Chappell which resulted in his call for a universal rule and description of his own proposal.³⁷

All, however, attend to one rule, and that is, in passing each other on their starboard sides; but I understand the reverse is observed at other ports, which has naturally been attended with collision when a Liverpool vessel gets amongst them. Now it is to be wished that a compulsory general rule were introduced; and I submit. that three plain lights, one on the foremast-head, and one on the fore part of each paddle-box, (not to throw any light abaft the beam,) cannot fail to indicate the position of the vessel. And as it is most important to know when the rule should be departed from (as in the case of two steamers suddenly discovering each other in rounding a point of land, or closing in a fog), I propose that the starboard paddle-box-light should be masked, so as to cross the line-of-keel direction at an angle of 17 degrees towards the larboard-bow. It would then be simply thus: If you ever perceive the three lights of a steamer (which must be in a vertical triangle, if seen at all) on your larboard bow, then you must starboard your helms, and cross to the right side, until respectively on the starboard bow of each other. If, however, you do not see the three lights, it is certain you have so advanced on each other's forward track as to have shut in the starboard light; and if you attempt to recover the right side by crossing, you will, in all probability, run into each other. It is then that the rule should be abandoned, and each vessel keep her previous course. I annex a diagram (plate i., fig. 5) to explain my plan, and have assumed the starboard side as the rule side. The plan will apply conversely.

This plan must have been made for vessels on roughly parallel courses in coastal and open waters. For rivers and narrow channels this problem could have been solved by a clause to which side of the fairway the vessels had to keep. His proposal looked well thought but it was in every respect an extremely dangerous plan. It was probably

³⁴ The screening of light-rays of the side-lights and their showing across the bows was the main subject of a Report by a Departmental Committee in 1895. This was an important issue as two vessels being stem-on would not see each other's side-lights but sail in the other's dark lane, only the mast-head light being visible if the rays would be "screened with the keel" and not cross the keel-line. This dark lane had to be avoided and consequently the rays had to cross the keel-line in some degree to make the vessels aware of the end-on situation and that some radical action had to be taken. The rate with which the rays shall incline towards the keel-line and the method of measuring it were the main subject of this Report on Screening of Side-Lights of 1895 of 280 pages (H.C. and H.L., 1895 [C.—7908.], [C.—7908.-I]);

³⁵ H.L., 1839 (181.), p. 69;

³⁶ To his role as Board of Trade Inspector in 1849 and 1850 see the chapter on Admiralty Regulations, 1848;

³⁷ H.L., 1839 (181.), p. 73;

Figure 1 and 2: Collision between *Royal William* and *Tagus* as happened on 7th November 1837 (Engraving by J.C. Shaw, City of Dublin Steam-Packet Company).

Figure 3 and 4: Arrangement of side-lights and mast-head light as ordered by City of Dublin Steam-Packet Company from 1st January 1834.

Figure 5: Captain Henry Mangles Denham's arrangement of a vertical triangle of lights as suggested in the Report.

Engraving from: House of Lords, 1839 (181.), Appendix, Plate 1.

Fig. 1
Engineer to the City of New York

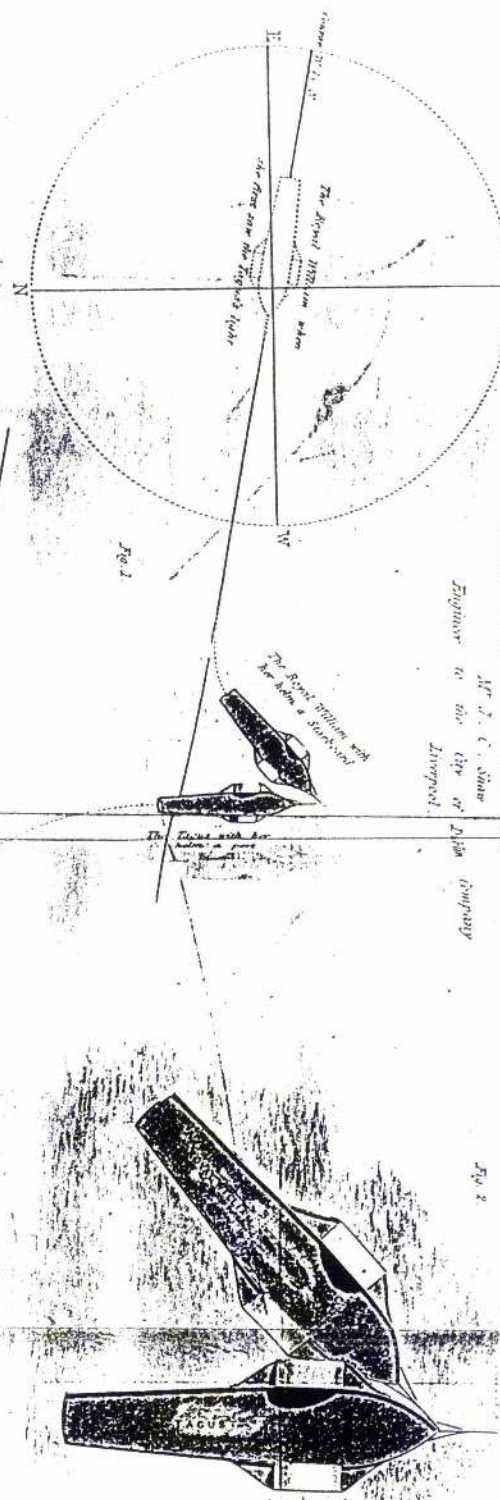


Fig. 2
The Great Western Lighthouse

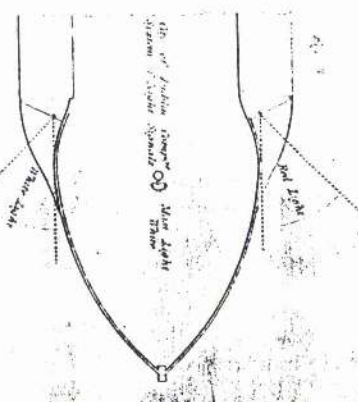


Fig. 4
The Great Western Lighthouse



Fig. 6



Fig. 9



Fig. 11
The Great Western Lighthouse

The Great Western Lighthouse is situated on the north side of the entrance to the harbor of New York. It is a small, white, cylindrical tower, 100 feet high, with a red light at the top. The lighthouse is situated on a small island, and the water is very shallow. The lighthouse is situated on the north side of the entrance to the harbor of New York. It is a small, white, cylindrical tower, 100 feet high, with a red light at the top. The lighthouse is situated on a small island, and the water is very shallow.

Fig. 12
The Great Western Lighthouse

To Figures 1 and 2:

CASE OF THE COLLISIONS BETWEEN THE "ROYAL WILLIAM" AND
"TAGUS," AND "THAMES" AND "SHANNON" STEAMERS.

Gentlemen,

Liverpool, 4 March 1839.

OUR Directors in Dublin having mislaid my original notes respecting the collision between the "Royal William" and "Tagus," I have been obliged to defer writing to you on the subject until Lieut. Saarsfield, who was commander of the former, arrived in Liverpool. I now send you his statement of the circumstance, and which was fully borne out by his crew when the case was arbitrated in my presence in London, last April. [. . .] I give a rough diagram of the two vessels, showing their positions after the blow, but before that moment of time when they separated. (See plate i. figs. 1, 2, 3, 4, and description of the City of Dublin Company's night signals, page .)

[. . .]

In giving you the foregoing diagram, I absolutely show you the particular position of the "Thames" and "Shannon" when they came into collision with each other off Brighton last October. The cases are exactly parallel so far as the peculiar situations of the effects of the blows; the "Thames" had a breach through her starboard bow, and the "Shannon's" larboard fore paddle-beam did the mischief; the extent of that mischief was not any thing like so great as in the first case, because the "Thames's" engines had been stopped for some time, and the "Shannon's" speed is slow at all times. The "Thames" was going to Ireland, and the "Shannon" to London. The lights had been visible to each crew for some time, but in consequence of the want of a general regulation for the right of the road, the "Thames" *starboarded* her helm, as is customary on this side of England, and the "Shannon" *ported hers*, because it is usual for vessels bound down channel to keep inshore! !—this was so said by the "Shannon's" pilot.

[. . .]

If I can give you any further information on the above or any other subject connected with your inquiry, pray command me.

I am, &c,

J. C. Shaw.

[. . .]

LIEUTENANT SAARSFIELD, R. N., COMMANDER of the "ROYAL WILLIAM."

Sir,

Liverpool, 4 March 1839.

In regard to the collision which happened between the "Royal William" and "Tagus" steamers off the Isle of Wight, on the morning of the 7th November 1837, I have to observe that on the above morning the "Royal William" bound down channel, steering W. by N., about 3h. 45m., the look-out man reported a light on the starboard bow: a little after 4, the same light, still on the starboard bow, was observed to be getting very near us; our helm was put a *starboard*, and immediately after the light was observed to be on board a steamer, and she, with her helm a *port*, coming right across our bows: we stopped our engines, but the steamer (afterwards found to be the "Tagus") struck us with great force on our starboard bow, stove it in, and did the vessel considerable damage: fortunately all the crew were on deck; had they been in their beds some of them must have been killed, as

the timbers were stove right into their berths. The "Tagus," as it was afterwards stated, was bound up channel, steering E. by S., consequently had she put her helm to starboard, as we did, no accident could have happened: but unfortunately the steamers in the London trade do not consider it a rule to do so, though those in the Irish Channel invariably adhere to it when meeting at night, by which I am convinced, from many years' experience in steam-vessels, that many accidents are avoided.

Again, the "Tagus" had only one light (that on the mast head); had she three, as the "Royal William" had, one at the mast head, and one in front of each paddle-box, we might have seen how her helm had been put, and prevented the collision, either by putting our helm a port, as she had, or by stopping our engines, on perceiving that her helm had been put contrary to ours.

The accompanying diagram will assist in explaining the positions of the vessels, and that the accident occurred by one *starboarding* the helm, and the other *porting*.

I am, &c.

Mr. J. C. Shaw.

City of Dublin Company's Office.

D. Saarsfield, Lieut. R.N.,
Commander of the "Royal William."

From: House of Lords, 1839 (181.), pp. 41-42.

To Figure 5:

[. . .] and I submit. that three plain lights, one on the foremast-head, and one on the fore part of each paddle-box, (not to throw any light abaft the beam,) cannot fail to indicate the position of the vessel. And as it is most important to know when the rule should be departed from (as in the case of two steamers suddenly discovering each other in rounding a point of land, or closing in a fog), I propose that the starboard paddle-box-light should be masked, so as to cross the line-of-keel direction at an angle of 17 degrees towards the larboard-bow. It would then be simply thus: If you ever perceive the three lights of a steamer (which must be in a vertical triangle, if seen at all) on your larboard bow, then you must starboard your helms, and cross to the right side, until respectively on the starboard bow of each other. If, however, you do not see the three lights, it is certain you have so advanced on each other's forward track as to have shut in the starboard light; and if you attempt to recover the right side by crossing, you will, in all probability, run into each other. It is then that the rule should be abandoned, and each vessel keep her previous course. I annex a diagram (plate i., fig. 5) to explain my plan, and have assumed the starboard side as the rule side. The plan will apply conversely. [. . .]

Captain Henry Mangles Denham's suggested arrangement of a vertical triangle of lights.

From: House of Lords, 1839 (181.), p. 73.

developed out and in favour of the commonly recognised starboard-helm-rule which was followed on the River Mersey. Ships seeing each other's triangle of lights on the larboard bow were asked to cross the other's path for the sake of passing in a strictly regulated manner rather than through the least and easiest to realise action. May be through no action at all. They might pass perfectly clear from each other on their original courses. Instead the vessels lose vulnerable time and risk a collision in order to obey a river regulation in open waters ! Being in the 17° arc of a vessel's starboard light did not mean to be out of danger when changing course. The steamers might already be so near each other that the avoiding action would inevitably lead to collision.³⁸ This would be true especially in thick and hazy weather. Having shut in or out the starboard light's 17° arc was of course not an indication for distance and available time. This risk could only be reduced by narrowing the angle with which the side-lights were screened across the bows, which finally would lead to the Report on the Screening of Side-Lights, 1895.³⁹ This proposed plan was only a step forward in so far as other persons concerned about the issue of passing and action to be taken only thought about vessels meeting stem-on or nearly so.⁴⁰

Captain Denham's further proposals: steamers should give way to all other vessels. A sailing-vessel shall show one light at her quarter on the approach of a steamer but a fixed light at each quarter in pilot waters.⁴¹

³⁸ The obedience of the port-helm-rule as regulated in "The Steam Navigation Act, 1851." of 14 & 15 Vict., CAP. LXXIX., and in "The Merchant Shipping Act, 1854." of 17 & 18 Vict., CAP. CIV., led to numerous collisions due to the required crossing of each other's path. Years of curious Court proceedings and discussions finally resulted in the dropping of this rule in the Regulations for Preventing Collisions at Sea, 1863;

³⁹ See earlier footnote this sub-heading;

⁴⁰ A discussion about a definition of the term "end-on or nearly end-on" in order to decide if action shall be taken began in 1867 with a well circulated pamphlet by Thomas Gray, Assistant Secretary of the Board of Trade:

On The Value of Coloured Side Lights as a means for Preventing Collisions At Sea. With an Examination into the probable meaning of the words "two ships under steam meeting end on, or nearly end on, so as to involve risk of collision," as used in the Steering and Sailing Rules.— A Lecture delivered by Thomas Gray, At the Sailor's Home in Dock Street, London. [All profits arising out of the proceeds of sale of this Work will be appropriated by the Author in purchasing Prizes for the boys in Training Ships who pass good Examinations in the Rule of the Road at Sea.], not dated but 1867;

this was followed by an explanatory regulation of clauses (11.) and (13.) of the Regulations for Preventing Collisions at Sea of 1863 (*The London Gazette*, 4, 1868, p. 4307);

⁴¹ H.L., 1839 (181.), p. 73;

3. SUGGESTIONS FOR SOUND AND FOG SIGNALS.

Sound signals and the best means for producing them came much later into discussion than those for lights and were part of a Admiralty order as late as 1858. Before sound signals were used in rivers and coastal waters for distinguishing the approach of a steamer from that of a sailing-vessel rather than for warning purposes in thick and hazy weather. The earliest reference I could find, and there are surely earlier one's, was a letter in *The Times* of 25th October 1836. The writer recommended a Chinese gong as being preferable to bells both of which seemed to be already in use.

A reprint of an article of the *Railway Magazine* in *The Times* of August 9, 1837 spoke about Captain George Smith's, R.N.,⁴² instrument for telling other ships the course of a steamer in fog. A hammer connected to a machinery which had to be wound up occasionally stroke a gong every ten seconds with a certain number of blows: once, if going to the north; twice, if going to the east; three times, if going to the south; and four times, if going to the west. This was meant to give the course, position, and proximity of the steamer to any other vessel. Single sounds should be given in rivers and be enough for warning purposes. Railways should replace the gong with a trumpet.

Another idea came from H. Downs, Commander R.N., in consequence of the collision between the steamers *Monarch* and *Apollo* on the Thames on 5th September 1837. He suggested a piece of noisy machinery connected to the wheels and situated at the fore-part of the paddle-boxes with a lanyard to stop the noise. The starboard side shall be furnished with a loud rattle and set in motion when the steamer was going up-river and the larboard side shall be furnished with cymbals of a band and set in motion when going down-river. Any other two noises dissimilar to each other could also be used. Particular attention should be paid not to interfere with the steerage orders to the helmsman. It was presumably the editor of the magazine who remarked that there needed to be a way to keep this machinery running while the wheels were not in motion.⁴³

As a *Times* correspondent was of the opinion that the gong could serve only in hazy weather and that some means were necessary to give an immediate signal to

⁴² He later invented the paddle-box boats;

⁴³ *The Nautical Magazine and Naval Chronicle, For 1837*, (Vol. I), pp. 814-15;

approaching vessels he referred to a Mr. Robson who was given the approval by the Admiralty for the following plan which was adopted by them on board H.M. Packets: Constructed after the principal of firearms a tinplate had to be removed and a screw turned to ignite the lights which then appeared as either a bright white light for five minutes, a blue flame for three minutes, or as a light discharging eight or ten balls of flames at regulated intervals. These fireworks were meant especially for use in passenger traffic.⁴⁴ They were probably not very well established as I could not find a single other reference to it.

In the letter of J.H. Bellaires, R.N., mentioned above, he also suggested a code of five distinguishing sound signals through two different sounds: one by a bell-like shrill sounding metal sheet on the fore-part of the starboard paddle-box, the other by a gong which might be struck by a hammer connected to the steam-engine and mounted to the fore-part of the larboard paddle-box. While going down-river the starboard bells should be kept ringing, while going up-river the larboard gong shall be struck continuously. Steamers at anchor shall sound both. In coastal waters and the Channel when steering in the first and second quarter of the compass the starboard bells shall be kept ringing. When steering in the third and fourth quarter of the compass the larboard gong shall be struck.⁴⁵

Another point Captain Chappell made in the Report of 1839 was that to speed in fogs and to sound signals which was not very often thought about. In principal steamers in rivers or coastal waters should reduce their speed to a quarter, at sea to a half. This should always be recorded in the log-book. They also should be provided with a steam-whistle or trumpet to be sounded at least every ten minutes.⁴⁶

4. THE REPORT ON STEAM-VESSEL ACCIDENTS, 1839 (181.).

A letter of instructions was sent on 2nd January 1839 by the Lords of the Committee of Privy Council for Trade, to the appointed committee to inquire into the number and nature of steam-vessel accidents during the last ten years and the mode of preventing

⁴⁴ *The Times*, September 8, 1837;

⁴⁵ *The Nautical Magazine and Naval Chronicle, For 1841*, (Vol. V), pp. 564-65;

⁴⁶ H.L., 1839 (181.), p. 69;

the reoccurrence of such accidents. On 29th May 1839 the Report was accomplished by Captain Pringle, R.E., and Josiah Parkes, Esq., Civil Engineer, consisting of 38 pages with 158 pages of appendices.

This Report was compiled together from queries of up to 14 questions sent to engineers, shipowners, Lloyd's surveyors, coroners, and other persons connected with steam navigation. The questions regarded accidents in general; accidents connected to boilers and coal; the strength of hull, rig, and equipment including boats; overhaul, repair, and survey; examining accidents; &c. Question no. 8 was:⁴⁷

8.—Are the regulations and signals established in the port of _____ effective for the prevention of collision between steamers and other craft ?

Additional material came from the Comptroller of H.M. Steam-machinery and Packet-service, from H.M. Customs, from the Committee of Lloyd's Register of British and Foreign Shipping, and others besides from visits to the ports of Liverpool, Glasgow, Greenock, Leith, Newcastle, Shields, Sunderland, Hull, and London and from having there spoken to engineers, shipbuilders, shipowners, masters, Navy-officers, &c.⁴⁸

The appendix started with the statements given by persons of the port of Liverpool and first by those connected to the City of Dublin Steam-Packet Company. J.C. Shaw, Engineer and Manager to this Company described the regulations and signals for that port as worthless as there was no universal Rule of the Road and law as to carrying lights which had its consequences in continual accidents. A positive law with clear definitions was wanted for carrying lights by steamers and sailing-vessels, the latter hardly shewed any lights at all. American packets never carried any lights in the channels which also resulted in constant accidents.⁴⁹

Lieutenant Lowe, R.N., Inspector of emigrant ships, was in favour of three lights and the starboard-helm rule.⁵⁰

The River Clyde was under the jurisdiction of Parliamentary trustees who

⁴⁷ H.L., 1839 (181.), p. iii;

⁴⁸ Ibid., pp. iii-iv;

⁴⁹ Ibid., p. 45; for the mode of exhibiting lights by the City of Dublin Steam-packet Company see earlier this chapter;

⁵⁰ Ibid., p. 64;

made the governing regulations for the port of Glasgow and the river.⁵¹ The opinions to lights and collision regulations varied from "excellent" (George Burns, Steam-vessel Owner and Agent in Glasgow) to "very defective" (David MacIver, Agent for Messrs. Thomson & Macconnell, Glasgow). But the need for lighting regulations for sailing-ships was clearly expressed.⁵²

The answers from the port of Leith stated unanimously that there were no regulations for and at the port of Leith which probably included the Firth of Forth. William Allen, Commander of the *Royal Adelaide* between Leith and London, suggested one bright light at the foremast-head and a red light under each bow.⁵³

Vice Admiral Sir David Milne, K.C.B., of the London and Edinburgh Steam Company, suggested another lighting system: two lights on the starboard-bow and one light on the larboard-bow. Vessels should pass on the side where two lights were shown. In case of bad look-out on the other vessel blue lights or rockets shall be fired to draw their attention.⁵⁴

The lack of any regulation for the Firth of Forth forced W. Hamilton, Agent for steam-vessels in Edinburgh, to give order to the masters of their vessels to exhibit a light on each yard-arm while going up or down the Forth or Thames.⁵⁵

Although there were regulations for the River Humber from 10th November 1836 concerning meeting and crossing courses, lights, &c., there were three different statements of three persons none of which was right, including one answer of a Surveyor to Lloyd's, Mr. Briham.⁵⁶ This was surely not representative but it leads to the question if these regulations were effective and well propagated. There were no penalties imposed for neglecting to follow these rules.

The bulk of the evidence came of course from the Port of London. Three engineers and two of the three surveyors to Lloyd's expressed the want of established general regulations for lights and sound signals, one engineering company, Messrs. Maudslay, Sons & Field, even demanded them for the whole of the U.K. and for the whole world. Lights for steamers should be made compulsory by fine (N. Middleton,

⁵¹ See chapter on Local River Regulations;

⁵² H.L., 1839 (181.), pp. 75-81, 84;

⁵³ Ibid., p. 88;

⁵⁴ Ibid., p. 98;

⁵⁵ Ibid.;

⁵⁶ Ibid., pp. 108-09, 116;

Surveyor). George Bayley, Surveyor, recommended differently coloured side-lights and, together with P. Courtenay, Surveyor, Mr. Pearce's lantern which came more and more in general use.⁵⁷

There were some single entries for other ports like for Dundee where there was no written regulation but an understanding to starboard the helm when meeting;⁵⁸ for Newcastle where there were no regulations for the port. Thomas Wooster, Agent for the Shields and Newcastle General Steam Navigation Company, recommended a coloured light;⁵⁹ for North Shields: M. Poppelwell, Surveyor, wanted a red light for river vessels going up and a green light for vessels going down-river, both keeping to its starboard side; for Whitehaven: the Whitehaven Steam Navigation Company displayed on their ships three lights: one at the mast-head and one at each bow;⁶⁰ for Southampton the helm had to be put a-starboard.⁶¹

16 of the 38 pages of the Report contained accounts of particular accidents by wrecking, foundering, explosions, and fire, those for collisions were given in the appendix, with summarising tables including a review of correspondents' statements towards lights and collision regulations. Opinions of shipbuilders and owners, engineers, harbour-masters, &c. were summarised together with their suggested measures and followed by a draft of recommended legislative regulations. Those for America, Holland, Belgium, and France were reprinted for comparison before the Report closed with an analysis of 92 accidents from 1817-1839.

Of these 92 incidents, which were derived from newspaper accounts and individuals because of a lack of official records about steam-vessels, 12 were listed as collisions with 66 of 453 lives lost, 62 at one single collision only. It was that of the *Comet* and *Ayr* in the Clyde from want of night signals or neglect of look-out. Forty additional lives were lost according to watermen's and coroner's lists during the last three years.⁶² This figure of 92 accidents during 22-23 years was of course a gross under-estimate of the real figure. A quick look into *The Times* had been enough.

⁵⁷ H.L., 1839 (181.), pp. 118, 127, 131, 140-42;

⁵⁸ Ibid., p. 99; were the regulations of 1824 repealed or did they fall into disuse ?;

⁵⁹ Ibid., p. 104;

⁶⁰ Ibid., p. 143;

⁶¹ Ibid., p. 154;

⁶² Ibid., pp. 1, 30;

In the summary of the evidence about lights and collision regulations Captain Pringle and Josiah Parkes stressed first of all that nearly all answers to the queries complained of the absence of a generally understood universal Rule of the Road and rules as to lights and night signals which was felt in the loss of lives and the expenses for avoidable repairs. They recollected the amount of money which had to be spent on the repair for vessels of recent collisions besides the loss of other vessels and of lives.⁶³

They highlighted Captain Denham's remark that local rules concerning vessels meeting and passing in opposite directions opposed each other, and also the mode of exhibiting lights by the City of Dublin Steam Company.⁶⁴

Another point of great importance was that to sound signals in thick weather when lights could only be seen when the vessels were very near each other. A steam-whistle, being much stronger than the sailing-vessel's bell or horn, would not only answer this purpose but would also distinguish steamers from other vessels. Inquiries were made with the result that the whistle can be worked by both low and high pressure boilers.⁶⁵

The summarised causes of accidents for collisions revealed four causes: the want of an universal code of night signals; the want of a defined and compulsory "rule of the road."; racing; and carelessness or neglect of look-out. Of all accidents collisions came on the fourth place after wrecks through foundering or imminent peril, after explosions, and after fires.⁶⁶

In a table of steam-vessels' size, tonnage, and power for the end of the year 1838 it appeared that the total number of vessels in Great Britain and Ireland was 766 including 83 not registered vessels for they were plying within the limits of their port. 484 of these were classed as river-going steamers and small coasters and 282 as large coasters and sea-going ships. In 1837 there were 624 registered vessels and in 1836 546.⁶⁷

Reviewing the correspondent's information on the subject of collisions Captain Pringle and Josiah Parker drew up a proposal for legislation: the starboard-

⁶³ H.L., 1839 (181.), pp. 12-14;

⁶⁴ Ibid., p. 13;

⁶⁵ Ibid., p. 14;

⁶⁶ Ibid., p. 16;

⁶⁷ Ibid., p. 17;

helm rule should be adopted together with the lighting system of the City of Dublin Steam Packet Company. The use of a powerful steam-whistle, bell, or gong should be made compulsory for steam-vessels, and their speed through the water should be defined for fog, thick weather, and crowded waters by night as well as by day. A distinguishing feature between steamers and sailing-vessels and vessels at anchor was also fundamental.⁶⁸

This was the second Report on steam-vessel accidents and navigation with recommendations to the avoidance of collisions but so far the most investigative and exhausting in both the evidence given and extent of the Report itself. The part on lights and collisions took up a considerable amount of space and thought and stressed once more the necessity for universal legislation in the shape of an Act of Parliament. Besides the commonly acknowledged rules as those to bearing-up and starboarding the helm there seemed to be a tendency to display three lights in a triangle, one at the mast-head and one at each paddle-box which might not have been screened by purpose but only by the position in which they were placed. It was therefore only logic that this system was recommended by Captain Pringle and Josiah Parker for it worked out by experience to be the best mode of indicating the course to other vessels and so to avoid collisions.

It had been an easy task to make this more and more accepted system of three lights compulsory by enactment or by order of the Admiralty. It is therefore not understandable and in fact outrages that the Government and the Admiralty simply did nothing but ordering one report after another with no consequences following. Instead, some time in 1839 the Admiralty drew up a code of passing rules for men-of-war steam-ships only which ordered a port to port passing rule for rivers, channels, and open waters and contradicted the widely established starboard to starboard passing rule.⁶⁹

When ships on different tacks must pass near each other, the ship on THE STARBOARD TACK IS ALWAYS TO KEEP THE WIND, and that on the larboard tack to pass to the leeward, bearing up in time for that purpose.

When STEAM VESSELS not under sail, but on different courses, must unavoidably or necessarily cross so near that by continuing their respective courses there would be risk of coming in collision, they are always to pass ON THE LARBOARD SIDE OF EACH OTHER.

⁶⁸ H.L., 1839 (181.), p. 27;

⁶⁹ H.C. and H.L., 1895 [C.—7908.-I.], p. 278;

A STEAM VESSEL passing another in a narrow channel must always leave the vessel she is passing ON THE LARBOARD HAND.

It shall take another seven respectively nine years before the Steam Navigation Act of 1846⁷⁰ and an Admiralty order were passed.

⁷⁰ 9 & 10 Vict., CAP. C. An Act for the Regulation of Steam Navigation, and for requiring Sea-going Vessels to carry Boats. [28th August 1846.];

MR. ROBERT RETTIE'S PATENT SIGNAL LAMPS AND OTHER LAMPS.

Robert Rettie, Civil Engineer, of 148 Argyll Street, Glasgow, published on 4th June 1841 two cards with his inventions of two codes of signals to be used with his steering lamp for sailing-vessels and steamers. These lamps consisted of a cylinder with a dome which carried itself a revolving cylindrical top and the cone shaped lid which was supposed to steady the flame, probably through equal air circulation. The cylinder contained a reflector and Argand burner. The lens was furnished with a slide mounted in front of it which carried two coloured glasses, red and green. These could be operated through cords or iron rods. The code of signals was thus: an interrogation signal, a white light, displayed for two minutes only to the other vessel with which it was on a meeting course, shall be answered by a sailing-vessel with a half clear, half green light and by a steamer with a half clear, half red light. While the vessel takes the appropriate action it shall communicate it to the other vessel by showing the red glass when sailing/about to sail to larboard and the green light when sailing/about to sail to starboard. If both glasses are withdrawn and a clear light is shown the vessel intends to keep course and sail straight a-head. The lamps were also capable of showing signals of distress: a clear light at the topmast with a green light at the cross-trees shall be exhibited by sailing-vessels and a clear light at the topmast with a red light at the cross-trees exhibited by steamers. A clear light exhibited for five minutes only at the mast-head shall be the signal for the want of a pilot or boat. For more boats the number of lights had to be increased accordingly.¹

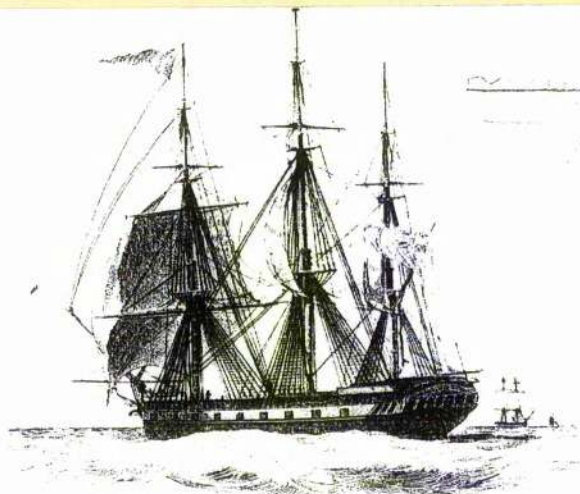
The lights could be seen about three points on either side from the centre line. The weight of the lantern was 38lbs., depth 10in., to front glass 13in., height 13 1/2in., to dome 22in., breadth 15in., front screen 31in.² This lamp was later supplied to the Admiralty at a cost of 6*l.* 6*s.* and might reflect the cost price.³

This lamp was designed as a *direction* indicator as opposed to a *helm* indicator. In general it was an ingenious invention as it distinguished steam-vessels from sailing-vessels which already implied the appropriate rules for avoiding collisions, it shewed

¹ As described and engraved on the cards;

² H.C., 1846 (568.), p. 2;

³ H.C., 1852 (59.), p. 8;



Entered at Stationers Hall

RIETHE'S SIGNALS FOR SAILING VESSELS.

For the use of the Patent Signal Lamp for preventing collision at Sea adapted for
RAILWAYS. STEAMBOATS. SAILING VESSELS. &

SAILING VESSEL SIGNALS.

Nº 1. INTERROGATION SIGNAL

CLEAR LIGHT Top Mast (Time 2 Minutes)

Nº 2. SAILING VESSEL'S SIGNAL or Reply

$\frac{1}{2}$ CLEAR $\frac{1}{2}$ GREEN

Nº 3. **CLEAR** alls right

Nº 4. **GREEN** Starboard

Nº 5. **RED** Larboard

Nº 6. SIGNAL OF DISTRESS

CLEAR at Top Mast

GREEN at Cross Trees

Nº 7. SIGNAL FOR BOAT OR PILOT

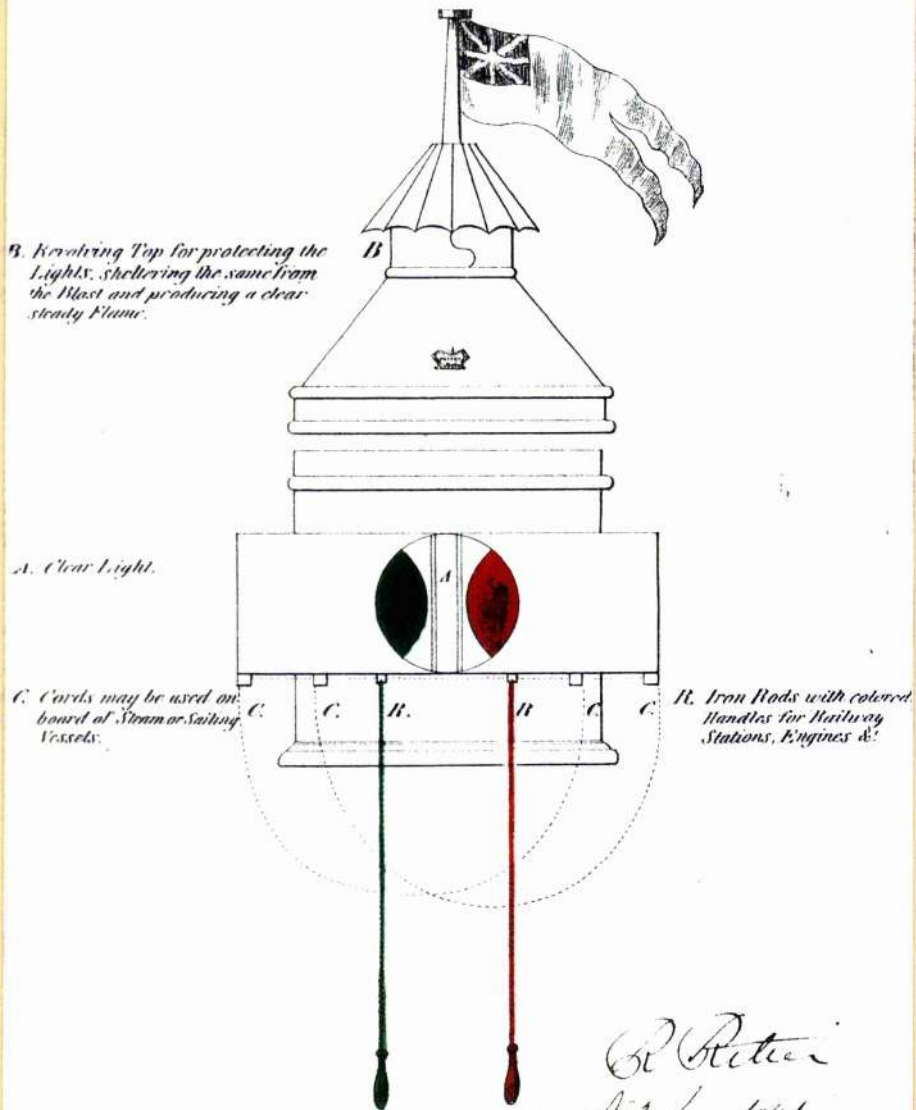
CLEAR LIGHT at Top Mast. 5 Minutes.

If more than one Boat increase the Number of Lights at Top Mast.

N.B. The above signals are laid down for the use of all classes of Sailing Vessels, and from their simplicity and general utility the Inventor requests the attention of Proprietors of Steam or Sailing vessels to give them a trial. All sizes of Lamps suitable for Railways, Steamboats, & Sailing Vessels, or Tackets will be supplied by the Patentee for all the old Lamps on application at the Inventor. R. S. Argyll St. Glasgow.

Published for & by the Proprietor, Robt Riethe, 148 Argyll St. Glasgow
4th June 1847.

RETTIE'S PATENT SIGNAL LAMP.



the intended action or that just taken long before they came into hearing distance, hence saving some valuable time through clear and early communication. The lack of it always was a great contributor to confusion and last minute decisions which were regularly followed by collisions or near-collisions. The possibility of showing also distress signals (what was the idea of having two different ones ?) and pilot signals made the code too complicated. Unfortunately, some problems appeared during trials with the mixed lights.⁴

There seemed to be no records available for the next 27 months until the 4th September 1843 when Mr. Rettie sent a letter to the Lords of the Admiralty. He must have had some communication in writing and/or personally with commanders of the Royal Navy, of steam-packets, and transatlantic steam-vessels at ports of Scotland and England who welcomed his lantern, also with ship insurers who announced a reduction in insurance money if "a system" should be adopted by the Admiralty. This was his back-up for setting himself in a good position before he presented his invention to them. Mr. Rettie remarked that the light will be seen from five miles distance and stressed his great costs and labour it involved and that his own intention was only the safety of the sailor's life. He asked for the opportunity to show to their Lordships the working of his lamps before he finally explained the code and distress signals and advantages and expressed his wish to have them adopted all over the world.⁵

The Admiralty replied with a very short answer, sent off by the secretary on 13th September 1843 "that my Lords are not prepared⁶ to introduce a system of coloured lights into the Navy."⁷

Mr. Rettie thought this was a misunderstanding. He did not intend to see the Admiralty adopting a system of coloured lights but to show them his single lamp for preventing collisions.⁸ The answer of the 13th was repeated but with the offer to explain his invention to the office when in London.⁹ Having just been there and mentioning the great expense of going there Mr. Rettie again explained briefly the

⁴ See below;

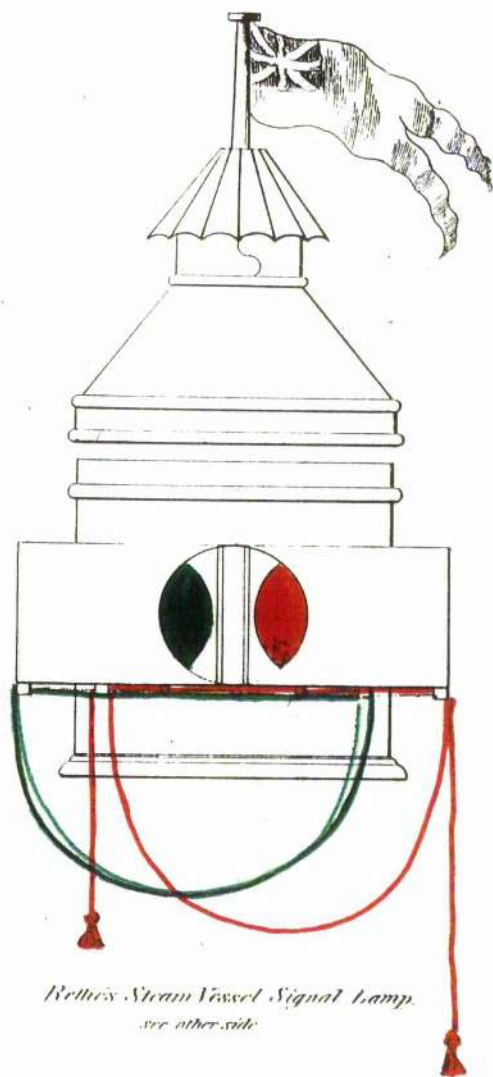
⁵ H.C., 1852 (59.), pp. 2-3;

⁶ Translate: ignorant, reluctant, careless, &c.;

⁷ H.C., 1852 (59.), p. 4;

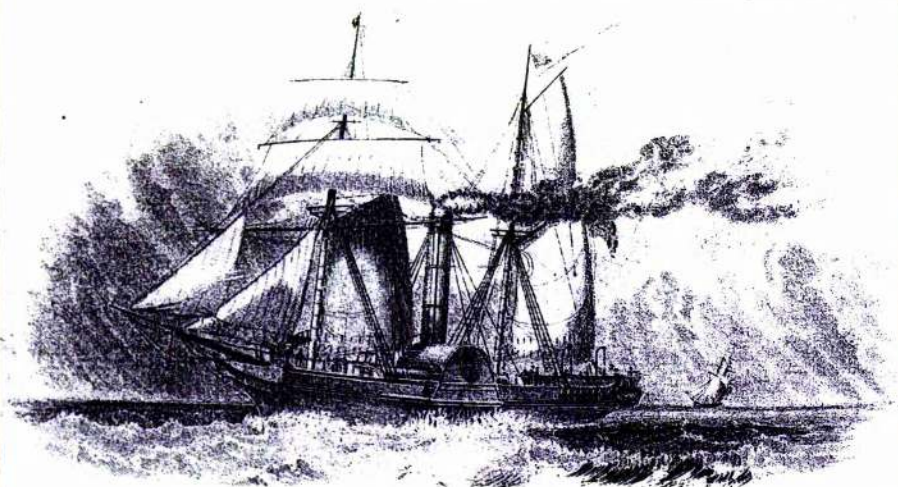
⁸ Ibid., letter of 18th September 1843;

⁹ Ibid., letter of 21st September 1843;



Bell's Steam Vessel Signal Lamp.
see other side

P. Pettie
June 26. 1841



Entered at
Stationer's Hall

RETTIE'S

SIGNALS FOR STEAMERS

For the use of the Patent Signal Lamp for preventing collision at Sea adapted for
RAILWAYS, STEAMBOATS, SAILING VESSELS, &c

STEAM BOAT SIGNALS.

Nº1. INTERROGATION SIGNAL

CLEAR LIGHT Top Mast (Time 2 Minutes)

Nº2. STEAMER'S SIGNAL or Reply

$\frac{1}{2}$ CLEAR $\frac{1}{2}$ RED

Nº3. CLEAR alls right

Nº4. GREEN Starboard

Nº5. RED Larboard

Nº6. SIGNAL OF DISTRESS

CLEAR at Top Mast

RED at Cross Trees

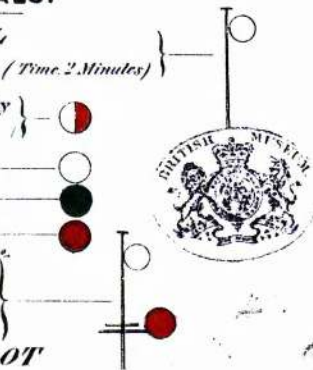
Nº7. SIGNAL FOR BOAT OR PILOT

CLEAR LIGHT at Top Mast. 5 Minutes.

If more than one Boat increase the Number of Lights at Top Mast.

N.B. The above signals are laid down for the use of all classes of Steam Vessels, and from their simplicity and general utility the Inventor requests the attention of Proprietors of Steam or Sailing vessels to give them a trial. All sizes of Lamps suitable for Railways, Steamboats & Sailing Vessels, or Tickets will be supplied by the Patentee for altering the old Lamps on application at the Inventor, 148, Argyll St. Glasgow.

*Published for & by the Proprietor, Robt. Rettie, 148, Argyll St. Glasgow.
17 June, 1844.*



functions of his lamp.¹⁰ On 27th December 1843 a letter of the Admiralty referred back to that of the 13th September. With this rejection the communication between them broke up according to the House of Commons paper.

Some important changes of Admiralty staff must have taken place over the next 14 months as on 28th February 1845 they offered him in a new letter a full trial of his lamp at his own expense. But they still did not understand its function as they wrote: "that this communication has reference only to the lights to be carried by steam-vessels to indicate their position."¹¹

Finally getting the chance for trials of his lamp, for which Mr. Rettie had been waiting so long, he now changed his mind and thought that such trials were not necessary but only the adoption of his proposed codes by all countries. He could not afford the expense of the journey and stay in London unless the Admiralty would pay for it. He also did not want other tradesmen at the trials for they could take (financial) advantage of his invention and asked further for being informed of the results of the trials by letter. But the Admiralty was not prepared to spend more money than the costs for two lamps.¹² But on 1st July he arrived with the Lamps in London.¹³ Two trials, one made at the Woolwich dock-yard at a distance of nearly half a mile and another on board a vessel at a distance of two miles, failed to convince N. Tinmouth, T. Lloyd, and S. Read who signed their Report on 12th July 1845.¹⁴ The single lights white, red, and green could be clearly seen and even more since the Argand burner supplied a much more brilliant light than conventional oil burners. But this was also the reason why in the case of the mixed lights the white light over-powered the other colour. They therefore expressed their general doubts of adopting Mr. Rettie's code and of using differently coloured lights as night signals instead of the plain white light.¹⁵

¹⁰ H.C., 1852 (59.), pp. 4-5, letter of 15th December 1843;

¹¹ Ibid., p. 5;

¹² Ibid., pp. 5-6; three letters in March 1845; his statement: "I have only one view, that is the saving of my fellow-creatures" (letter of 4th September 1843) was rather dimmed by his remark regarding other tradesmen. In cases of inventions for life-saving appliances the inventor often did not register his invention in order to see it quickly spread and distributed for application to the least expenses for "the saving of my fellow-creatures.";

¹³ Ibid., pp. 6-7, letters of 4th June, 13th June, and 1st July 1845;

¹⁴ H.C., 1846 (568.), p. 1;

¹⁵ Ibid., p. 2;

The Admiralty nevertheless must have considered the issue quite seriously as, although they were supplied with this summary of the trials, they, on October 28, sent another letter to Mr. Rettie asking for a person who was well familiar with the usage and operation of the lamps and who could attend sea trials at his own expense at Portsmouth or Plymouth. Mr. Rettie instead offered them his own assistance.¹⁶

Several trials were made, the first on H.M.S. *Rattler* by Commander Smith who reported in a letter on 12th November 1845 to the Secretary his great satisfaction as the colours were perfectly distinguishable at a distance of one mile which was enough for taking action to avoid collision. The observations were made in a clear moonlight night. He was also impressed by the simplicity of the lamp's construction.¹⁷

A set of trials was also carried out on board H.M.S. *Comet* on three occasions off the Spit Buoy which was positioned at the western side of the approach channel of Portsmouth harbour:¹⁸ on 18th (moonlight), 22nd (hazy weather), and 28th November (sufficiently clear weather). The opinions of six Captains were summarised in a table, five of them quite agreed with each other's observations on 18th and 22nd November: the bright light was seen as a good and brilliant light for up to four miles and even stronger in the direct line of the lens; the red light was mostly described as clear and distinct for up to two and a half mile; the green light was not so easily noticeable but said to be distinct for up to three quarters of a mile but to be useless beyond two and three quarter of a mile, a good glass might be necessary; the mixed lights were described as useless, dull, or no remarks were given. The sixth Captain, being the only observing person on 28th November, came to these result only in the case of the mixed lights. His other observation regarding the single coloured lights were much less good.¹⁹

The account as printed in the *Nautical Magazine and Naval Chronicle, For 1845* of the trial of 22nd November sounded quite different: that all single lights could be clearly distinguished because of their brilliancy. On an earlier occasion they were clearly visible for as much as six miles though the state of the weather was quite bad.

¹⁶ H.C., 1852 (59.), p. 7;

¹⁷ H.C., 1846 (568.), p. 1; Rettie, 1847, p. 25;

¹⁸ HMSO, Channel Pilot, Part I, p. 203;

¹⁹ H.C., 1846 (568.), pp. 3-6;

It repeated the advantages of the simple construction and use of the lantern and finished with an acknowledgement towards the Admiralty for their warm welcome and handling of the invention and the opportunities it was given to prove its usefulness.²⁰

Another trial took place in Portsmouth harbour between 24th November and 1st December 1845. The lights were displayed on board H.M.S. *Undaunted*. They were observed from a distance of three quarters of a mile from H.M.S. *St. Vincent* and H.M.S. *Victory* in clear, cloudy, hazy, and rainy weather conditions. The bright and red lights were described by all persons, three Lieutenants on H.M.S. *St. Vincent* and the Officers of H.M.S. *Victory*, as good, powerful, and distinct. The green light was rather indifferent, dim, and of little use and the mixed lights even worse.²¹

The Commander of H.M.Y. *Victoria & Albert* was ordered to conduct further trials of the lamp which took place on 22nd November and 4th December 1845 also at a distance of three quarters of a mile. On the first occasion all three single lights were clearly and easily distinguishable and led the Commander W. Crispin to the recommendation of introducing this system into general use. On the second occasion he got about the same results as his colleagues.²²

In a final reporting letter on the 5th December 1845 to H.T.L. Corry, M.P. and secretary of the Admiralty, Admiral Charles Ogle remarked that Mr. Rettie's code as described on the card for steam-vessels was contradictory to the existing regulation of "Explanatory Cases printed for the Use of the Commanders in the Employ of Messrs. Chapman & Company", issued by the Admiralty with an order of 23rd July 1845. The third rule said "that when both vessels have the wind free or a-beam, and meet, they shall pass each other in the same way on the larboard hand, by putting the helm to port."²³ Because of its weight the lantern should be fixed and not hoisted aloft. He further asked if the green light was sufficiently distinct from the red light to bring this lamp and code into use.²⁴

This letter indicated the confusion and non-understanding of the purpose of the lamp which was still going on in the Admiralty. They asked for and were sent a lamp

²⁰ *The Nautical Magazine and Naval Chronicle, For 1845*, (Vol. X), pp. 725-26;

²¹ H.C., 1846 (568.), pp. 3, 5, 7-8;

²² *Ibid.*, p. 6;

²³ See also chapter on Steering Regulations for Open Waters Before 1847;

²⁴ H.C., 1846 (568.), p. 2;

for steam-vessels although there was no real difference to those for sailing-vessels and the codes in this point. Charles Ogle quoted the rule for two sailing-vessels meeting but the cards did not lay down any kind of regulation but were only an engine for communicating the intended action. As he stated himself ! He spoke about the lamp as being useful for showing the tack the vessel was on, but steam-vessels, even when under the aid of sails, were always recognised as steam-vessels and not as sailing-vessels. The lamp also must be clearly understood either as a direction indicating lamp or tack indicating lamp. A confusion between these signals or with Mr. Pearce's lamp, which was already well in use, would result in serious danger and eventually collisions. But latter was not the point Admiral Ogle was making.

Mr. Rettie asked again, in a letter of 20th January 1846, then in London, for permission to exhibit and try the lamps now on request of public shipping companies. The Admiralty answered immediately and asked where he wanted the lamps to be delivered. It took then seven months until they were fitted up for trials on 20th August. A bill dated 1st September 1846 of 100*l.* 8*s.* for the journey, the time of 67 days in London, for the lamps (distress signal lamps were also paid for), &c. was soon answered with a payment of 60*l.*²⁵

Around this time, August 1846 Robert Rettie wrote a pamphlet *On the Necessity of employing One Universal System of Marine Night Signals for Preventing Collision at Sea, and Shewing Distress at Night*; In his general observations on such necessity he recalled the amount of British Empire shipping (31,817 vessels with a tonnage of 3,714,061 tons manned by upwards of 300,000 men) and the estimation of lost ships every day (one American and two British ships) before he blamed the people, the press, and the Government for their apathy towards this subject as long as there did not happen a dreadful accident. He criticised the present variety of lights as they only indicated the position of the vessel, but to arrange those single lights for course indicating purposes would lead to confusion and mistakes due to its complexity. The Trinity House order (of 30th October 1840) has been more dangerous than useful.²⁶

²⁵ H.C., 1852 (59.), pp. 8-9;

²⁶ Rettie, 1847, pp. 7-10;

One step—and that a good one—has been already made, by the passing of the Steam Navigation Bill, empowering the Lords of the Admiralty to compel all parties to adopt one uniform system of Signals; and the ports of England and Scotland have already publicly declared and adopted these [his] as the best; and it is now left to their Lordships to agree to their choice.²⁷

He described briefly the simplicity of his lamp only to explain the uselessness of all other arrangements, they did not tell the course the vessel was steering, but especially that of a clear mast-head light, a green, and a red paddle-box light. They had been used for years (?) but failed for the same reason, were too expensive, &c., and were pirated from his signal code:²⁸

But perhaps parties are not aware that *this plan is a piracy on my Code of Signals, and liable to an Injunction*; as this is the true merit of my invention which I claim. Lamps have been used without a meaning, and found *useless* until I gave them a meaning by my *new system*;

He stressed again the need to know what course the approaching vessel is steering or about to steer before he explained his distress lamps and signals.

Over and over again he attacked the Government, the Admiralty, and the Trinity Boards for delaying any system of signals, for keeping back the Report of the trials in Portsmouth, and for suppressing everything useful and necessary.

The second half of this pamphlet contained a few pages of extracts from the mentioned Report and *Times* article. Another 14 pages were filled with letters of steam-ship companies (P. & O., Dublin Steam Packet Office, Aberdeen Steam Navigation Company), from meetings of masters and shipowners held in most major east coast ports, from insurance associations, and with articles from east coast newspapers who all welcomed the new lamps and signals. The Committee of Lloyds gave their approval for this system and there was even a prospect of co-operation between shipowners and underwriters to promote Mr. Rettie's signal lamps.²⁹

The pamphlet concluded with a list of his inventions, patents, publications, &c. of which many concerned railway signals, applications for mining, and portable piers, landings, and breakwaters before he came to³⁰

²⁷ Rettie, 1847, p. 13;

²⁸ *Ibid.*, 1847, pp. 14-15;

²⁹ *Ibid.*, pp. 32-33;

³⁰ *Ibid.*, pp. 44-45;

31. .New Distress Signals for Vessels, (steam or sailing), shewing, at the expense of sixpence during the whole night, that they require assistance—"One of the best inventions of the day."—See Public Press.

32. .New Steering Lamp, for the prevention of collision, and loss of life thereby incurred. By this simple plan immense property may be saved from destruction and crews of vessels spared the risk of life.

[. . .]

34. Code of Signals for Steamers and Sailing Vessels, neatly engraved and printed, and may be had, for the use of Masters, Seamen, and Shipowners, on application to the inventor, and at all the nautical map and ship chandlers throughout Britain, and on the Continent

35. Simple Apparatus to be attached to the bow of Steamers, which is the means of saving crews from drowning when vessels or boats are run down.

Mr. Rettie demanded an appropriate remuneration for his expenses as the trials were acknowledged by the Admiralty as highly necessary and successful. He also wanted more compensation for the trials of 1845 at Woolwich for which he already got 29*l*. After several rejections the Admiralty finally allowed him another 40*l*. Mr. Rettie denied that he came on the basis to pay for his own expenses and that such agreement ever existed.³¹

On 1st January 1848 a further set of lamps was ready for delivery to H.M.S. *St. Vincent* for trial on request of her Commander-in-Chief Admiral Sir Charles Napier, then, November 1847, in Lisbon, through H.M.S. *Terrible*. A report was announced but so far not printed.³²

Instead the argument between Mr. Rettie and the Admiralty was renewed under a different heading. The Admiralty had just sent the proposed regulation for lights to the Trinity House in Hull when Mr. Rettie five days later on 17th January 1848 claimed that this light arrangement was a paltry deviation of his invention and a direct infringement of his patent and patent rights. He awaited compensation but the Admiralty denied his accusations. Mr. Rettie sent another two letters on 22nd January and 29th January 1848. He stressed again his time and expenses, and the promise by the Admiralty that his lights would be adopted when successful and he be paid. His lights were the only night signals which were now about to be adopted through the proposed regulation by the Admiralty who had only relocated the colours to avoid the appearance of infringement. Being the only person who ever brought coloured lights for maritime purposes into discussion he described the proposed Admiralty system as meaningless which will have to be abandoned within the next six months for their

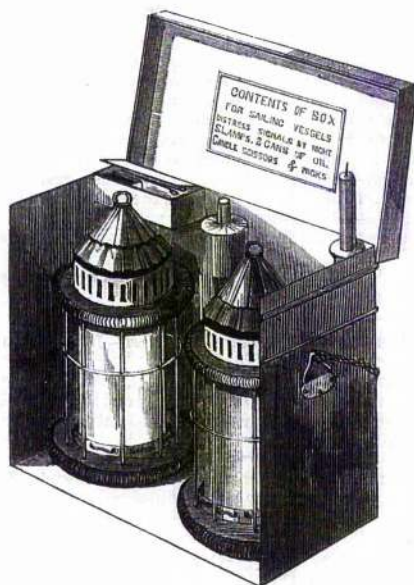
³¹ H.C., 1852 (59.), pp. 9-12, nine letters between 18th June and 29th July 1847;

³² Ibid., pp. 12-13, six letters between 8th October 1847 and 5th January 1848;

From: *Official Descriptive and Illustrated Catalogue of the Great Exhibition of the Works Of Industry Of All Nations*. Part III. Section III.—Manufactures, Class 22.—General Hardware, Including Locks and Grates, 1851, p. 647.

440 RETTIE, M., & SONS, *Aberdeen*—Manufacturers.

Patent distress signal-lamps, for steamers and sailing vessels in distress, invented by Robert Rettie, C.E., London. These lamps are shown complete and ready for use in the cut annexed.



Rettie's Patent Distress Signal-Lamps.

Patent signal-lamp, for preventing collision of vessels and steamers at sea.

insufficiency, and accused them of their stubbornness to introduce his lantern which resulted in many collisions.³³ He described the proposed system as "not only ridiculous in the extreme, as they never can get them carried out generally, from a variety of causes;" The system would also become too expensive and practically unmanageable. He wrote further:³⁴

nor would the Admiralty now, when they are put on their guard, try to force down the steam proprietors, or the shipping proprietors, to carry a number of lights without meaning. Fancy the confusion of 50-100 vessels coming up the river with 300 green, white, and red lights !! Where is the wisacre that could make out angles out of such a galaxy of variegated lights ? The thing is so absurd that it only wants a moment's reflection to see the futility of the scheme. In fact it is more theory, without any atom of practical knowledge.

The proposed lamps could at least be made cheaper and of a better quality. This outburst from him did happen again in a letter on 6th October 1851 which he sent from the Great Exhibition in the Crystal Palace where he exhibited his various lamps.³⁵ He accused Captain Henry Mangles Denham³⁶ of being "allowed, with others, to spoil these valuable signals by stupid alterations". He signed this letter with, and this was his base for the claim of compensation, "The first and only original Inventor of all the Coloured Signals on Land and Sea."³⁷ Mr. Rettie understood Captain Denham as appointed by the Admiralty to be an inspector of signal lights which the Admiralty rightly denied. In fact he was appointed by the Board of Trade to set up and administer the new Steam Navigation Department³⁸ which later on included also to be an inspector into shipping accidents and to inquire into the working of the new Admiralty light regulations of 1848.³⁹ The argument went on. Mr. Rettie stressed over and over again his efforts, expenses, and the injustice done to him and wanted to put this dispute before whatever jury. The Admiralty got so fed up that the secretary finally only replied that his letters were laid before the Lords

³³ H.C., 1852 (59.), p. 14, letter of 22nd January 1848;

³⁴ Ibid., p. 15, letter of 29th January 1848;

³⁵ Great Exhibition 1851. Official, Descriptive, and Illustrated Catalogue, Class 7.—Civil Engineering, Architecture, and Building Contrivances, No. 159, pp. 319-20; and Class 22.—General Hardware, including Locks and Grates, No. 449, p. 647;

³⁶ See for his suggestions of lighting systems chapter on Modes of Exhibiting Lights as Practised and Suggested Before 1840 and chapter on Report on Shipwreck, 1843; for his role at the Admiralty see chapter on Admiralty Regulations, 1848;

³⁷ H.C., 1852 (59.), p. 19;

³⁸ Prouty, 1957, p. 62;

³⁹ See chapter on Admiralty Regulations, 1848;

Commissioners. In a last attempt Mr. Rettie referred to his other inventions as shortly explained in his above-mentioned pamphlet of 1847, regarding the preserving of food, vegetables, and fruit in the Navy. The Admiralty replied for the last time on 17th January 1852 that this plan was also laid before the Lords. Here ended the recorded communication.⁴⁰

The Times reported about another testing of lights: of red and white paddle-box lights at Woolwich Dockyard on the 15th May 1849 in the presence of Commodore Henry Eden and others. These lamps were fitted to the steam-vessel *Black Eagle* and constructed after a plan of an officer of the Life Guards. A camphine liquid produced a strong brilliant light much more powerful than the ordinary lamps. They required hardly any attention and were as good as smokeless and very clean. The flame was comparable to those of gas burners.⁴¹

A Royal Letters Patent, No. 12,692, was granted to William Bush, Civil Engineer of Great Tower Street, London on 4th July 1849 for his invention of "Improvements in Lamps and in Lighting". Two of them particularly concerned ships' lights. The first was a signal lantern made for hoisting up to the mast-head. The invention and improvement consisted of a movable transparent or coloured glass reflector so that they could be substituted for each other. The glass was silvered or quicked from the back side. The front glass was transparent.

He did not state in his description for what purpose this light was meant to be. The Admiralty regulations came into operation a year before. This lamp had not given a light over the required ten or twenty compass points of the horizon. It could have been used for any other communication purposes (pilot, distress, steering lamp, &c.).

The other invention was meant to be a bow or quarter light. A lamp with a back reflector, of obviously no particular shape, was furnished with a conical, tube like shaped reflector of transparent or coloured glass, silvered or quicked from the outside. Mr. Bush wrote further that⁴²

a clear light should be always exhibited on the starboard bow or quarter, and a coloured one on the larboard bow or quarter, or vice versa, according to the rules laid down by the

⁴⁰ H.C., 1852 (59.), pp. 16-21;

⁴¹ *The Times*, May 16, 1849;

⁴² Letters Patent No. 12,692, 1849, p. 4;

FIG. 6.

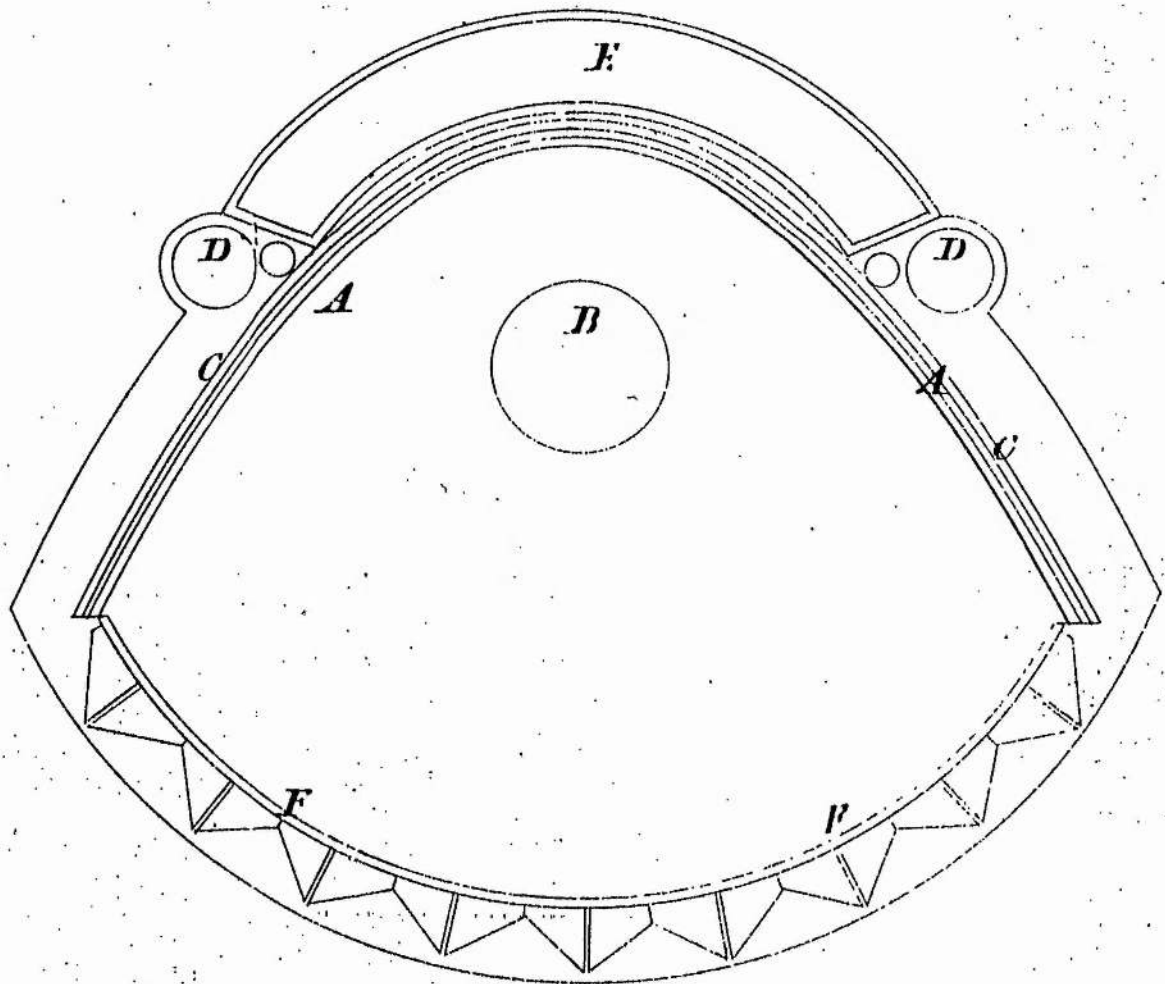


Figure 6 is a sectional plan of a ship's signal lantern fitted with transparent and colored glass reflectors, silvered or quicked as aforesaid, but differing in this from the reflectors before described, that in this case the reflectors are moveable, which admits of a reflector of one color being readily substituted for a reflector of a different color. A is one of the reflectors; B the lamp; C, C, the frame; D, D, guides to which it is slung when hoisted to the masthead of the vessel. E is the oil cistern, and F the front glass and frame.

FIG. 12.

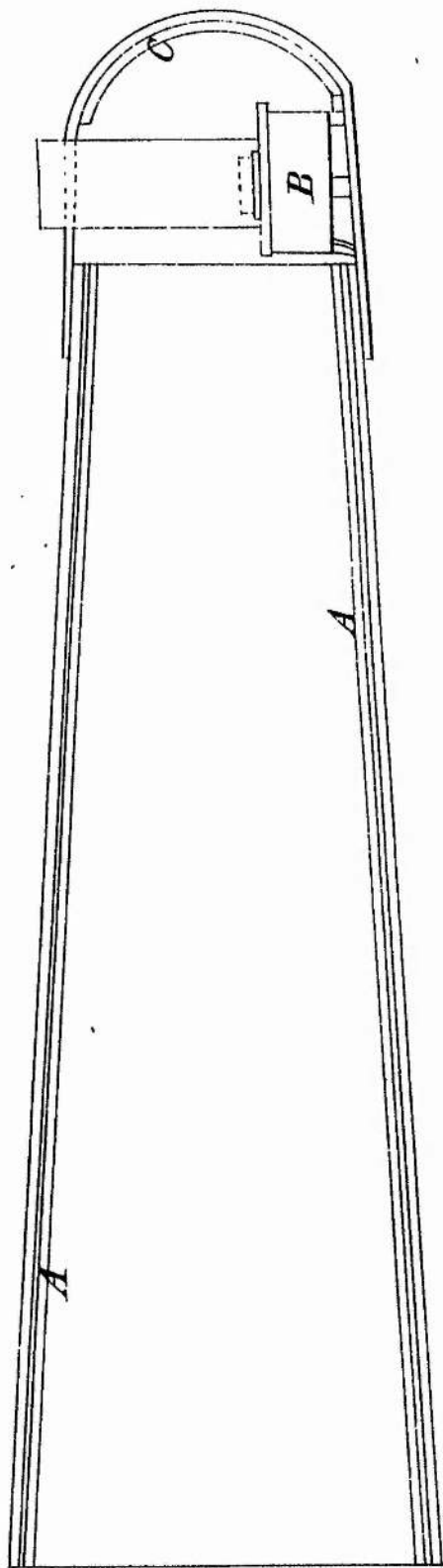


Figure 12 is a sectional elevation of a conical reflector for a ship's bow or stern. It may be made of transparent or of colored glass, silvered or quicked on the outer surface as aforesaid. A is the reflector; B, the lamp, which, together with the back reflector C, slips over the inner end of the reflector A. When colored glass is employed, then a colored light will be reflected; and I should prefer that a clear light should be always exhibited on the starboard bow or quarter, and a colored one on the larboard bow or quarter, or vice versa, according to the rules laid down by the Admiralty and Trinity Boards, which would clearly mark the course of the vessel to any other vessel.

Admiralty and Trinity Boards, which would clearly mark the course of the vessel to any other vessel.

His intention with this reflector is also unclear. Did he intend to throw the reflected light in a narrow, concentrated beam a-head ? However, this arrangement had not been in accordance with any Admiralty or Trinity House regulations.

Besides other claims Mr. Bush claimed to have adopted the silvering or quickening, as patented by Thomas Drayton,⁴³ to the back side of lamp reflectors. The specification was signed on 4th January 1850.

⁴³ His Letters Patent of 4th December 1848 concerned the prevention of silvered or quicked surfaces from running at high temperatures;

THE REPORT ON SHIPWRECKS, 1843 (549.) AND (581.).

The first Report on shipwrecks in the whole of the shipping industry appeared in 1836, carried out by a Select Committee of nine members under the Chairman J.S. Buckingham. Asked to inquire into the causes of shipwrecks and the possibilities of improving the construction, equipment, and navigation of merchant vessels they examined 33 witnesses on 12 days in July and beginning August 1836. The result of 267 pages of evidence was amended by an appendix of 116 pages and explained the shipwrecks through faulty construction of ships; improper equipment, repair and loading; competition with cheap foreigners; inappropriate forms of hulls; the legislative system of classification of ships; the system of tonnage admeasurement; incompetency of masters and officers; drunkenness; the system of marine insurance; the want of harbours of refuge; and finally the imperfection of charts. Although the issue of a universal lighting system, of a universal Rule of the Road were discussed in earlier reports, so in the Report on Steam Navigation, 1831 and in the Report on Pilotage, 1836, and was also subject of the inquiry into the state of the Port of London held at the same time, and although several Bills with such clauses were brought in and put before the House these subjects of lights, lighting systems, Rule of the Road, collisions, &c. were, according to the index, not mentioned with a single word. The whole Report was ordered to be printed on 15th August 1836.¹

A second inquiry in and Report on Shipwrecks and the means of preserving the lives and property of shipwrecked persons was ordered on 16th February 1843. A committee of 15 members was put together which included the Vice-President of the Board of Trade William E. Gladstone² and Captain Fitzroy, R.N., and was even more substantial: six pages of Report, 408 pages of evidence, and 106 pages of appendices, all analysed in an index of 86 pages. The evidence was taken from 69 witnesses on 23 days from 27th April to 20th July 1843. This was amended by another 21 pages of evidence and a second Report. They were presented to the House of Commons on 10th and 15th August respectively.³

¹ H.C., 1836 (567.);

² He was Vice-President of the Board of Trade from September 1841 to May 1843 and became its President from then to February 1845 (Prouty, 1957, p. 109);

³ H.C., 1843 (549.), and H.C., 1843 (581.);

The Committee inquired into the points which they considered as the most essential. These were: the character of ships; the competency of masters and mates; the facility of obtaining good pilots; harbours of refuge; lighthouses, beacons, &c.; charts and compasses.⁴ Collisions and lighting systems were not a subject they paid special attention to but was also attended to on a very occasional basis. Another important subject in this respect was that of marine insurances.

Captain Alexander Bridport Becher, Commander R.N., remarked rightly that many collisions occurred through the want of a good look-out⁵ and Captain John Washington, R.N., said that it should be insisted upon.⁶

Furthermore the want of lights and the adoption of the port-helm-rule were discussed. Edward Chappell, Post-Captain in the Royal Navy, referred to the eleven different customs of showing lights in the port of Liverpool alone and the difficulty in consequence of avoiding collisions. He himself was in favour of the lighting system of the City of Dublin Steam-packet Company.⁷

Captain Henry Mangles Denham, R.N., F.R.S., gave a lengthy statement and explanation. He preferred a vertical triangle of lights but both paddle-box lights had to be clear lights as coloured glasses always diminish the strength of the lights. Referring to the danger of blindly following the port-helm rule⁸ when the vessels see each other on their starboard bows he recommended that the lights should not shine abaft the beam so as to give an indication if the port-helm rule could safely be obeyed or had to be departed from.⁹ His idea based on an experience he had when he met another vessel coming round a sharp bend of the Thames. If the lights were no longer visible to the approaching vessel then only because the other vessel had crossed her bow already and the port-helm rule should be abandoned.

It is certainly true that with such a light arrangement the vessel whose lights have ceased to be visible has already crossed or is about to cross the other vessel's course. But this argument can not be turned round. Two lights being visible gave not in this

⁴ H.C., 1843 (549.), p. iii;

⁵ Ibid., pp. 116-18;

⁶ Ibid., p. 100;

⁷ Ibid., pp. 52-53; see chapter on Modes of Exhibiting Lights in Open Waters Before 1840;

⁸ See chapter on Modes of Exhibiting Lights in Open Waters Before 1847;

⁹ H.C., 1843 (549.), pp. 92-93;

or any other case the slightest indication that the port-helm rule was a safe and appropriate measure to avoid collision.

Other witnesses wanted the lights at the mast-head and bowsprit (Joseph Somes, Esq.),¹⁰ in a triangle (Captain John Washington, R.N.),¹¹ or thought it sufficient to have a light at a particular yard-arm in addition to the light always carried under the bows (Captain Frederick Bullock, Surveyor, R.N.).¹²

The other measure to prevent collisions here discussed was the port-helm-rule. Captain Chappell wanted to make it a law instead of leaving it as an optional regulation although he was aware that the Admiralty Court decided in favour of the vessel which ported her helm. He referred to the collision between the *Royal William* and *Tagus* to point out that this regulation should be made known to all ports and masters which so far was not the case.¹³

Captain Bullock also pointed out the risk of collisions by crossing the other vessel's path. The regulation should be ignored if there was time and opportunity to avoid a collision in a different way. During the last winter he was called on a trial about the Trinity House regulation. Only in cases of immediate danger when there was no time to judge or the commanders were unable to judge should the helmsman put the helm regardlessly a-port.¹⁴

One quite well considered subject was that of insurances for vessels and in particular the fraud on insurances. John Powell, employed by Lloyd's Coffee-house for settling claims of underwriters, was examined in length and gave a good description about the present situation. The policies insured the whole of the vessel: hull, rigging, &c. It was allowed to insure a vessel for the same sum over several years although they declined in value. It was also allowed to insure them for about 25% more than their value. A court of law would make the insurers pay in case of loss of the vessel. Good insurances covered the value of the cargo, the estimated profit, and the insurance premium. This way it was more profitable to founder the ship or to run her ashore especially on the return from long voyages, for example the East Indies. The whole voyage would take about three and a half years which put a lot

¹⁰ H.C., 1843 (549.), p. 69;

¹¹ Ibid., p. 100;

¹² Ibid., p. 288;

¹³ Ibid., p. 100;

¹⁴ Ibid., pp. 288-89;

of strain on the vessel. Her value would be greatly reduced and she might have to be put into a dock for repairs. The wages had still to be paid to the seamen, and also some other expenses. This would reduce the value of the cargo. In case of loss these expenses would not occur and stop with that day and the owner would be paid a sum by the underwriters which should be several thousand pounds above the profit after an arrival. Inquiries into losses were not made when the shipowner was of good character or unless there were reasons to be suspicious.¹⁵

But even for purposely wrecked vessels, and this concerned old vessels only, the underwriters had to pay the insurance sum. Also in cases of neglect of good seamanship and barratry the insurers had to pay out. Mr. Powell said about barratry:¹⁶

5033. Do Lloyd's pay that too?—Yes, the people for Lloyd's Coffee-house pay for smuggling; that is the reason you have so much smuggling; that is barratry. I had a dispute with a man on that score some time ago. I told him, You ought not to have the conscience to ask it; there the owner was not a party to the transaction, but the captain of the ship which was seized. The Excise will sometimes charge a ship 1,000*l.* or 2,000*l.*, according to circumstances, and the underwriters must pay that sum of money.

In some cases of purposely wrecked vessels and after the insurer's pay-out the vessels appeared again. There were no means to refuse liability of underwriters for such circumstances.¹⁷

The proof of incompetency of the crew seemed to have been the only way to refuse the paying out of money. A court of inquiry into the loss of the vessel and an examination of masters and mates would lower the insurance sums.¹⁸

Altogether, the premiums for every insurance case were lower than they were some 20 years ago. The cases of collisions had increased in the same proportion as the number of vessels but those out of carelessness had increased over-proportional to the number of vessels insured. A good part of collisions occurred in the Channel. One such reason was the running-down clause which made the underwriters of the wrong-doer liable to pay for the loss of the ship which was run down. This sum was mostly settled with two thirds of the loss and was in Mr. Powell's opinion a reason for the

¹⁵ H.C., 1843 (549.), pp. 313, 315-16;

¹⁶ Ibid., p. 316;

¹⁷ Ibid., p. 312;

¹⁸ Ibid., pp. 316-17;

carelessness of vessel's crews and the increase of such cases. This clause was put into existence only recently.¹⁹

Mr. Powell's opinion that the examination of masters and mates would have a positive effect on the premiums was also confirmed by Captain H.M. Denham.²⁰ Captain James Barber, Captain to the East Indies, told the underwriters: "If you would register brains and not bottoms it would be much more serviceable to you."²¹ That the masters relied too much on the insurances was also expressed by Captain Washington.²²

The only proper suggestion of how to remedy this abuse of insurances came from Captain Alexander Bridport Becher who suggested that no one should be allowed to insure the ship and cargo to the full amount of its value but to 75% only so that the owners would have some interest in the safety of the vessel.²³

The first Report itself did not mention the word 'collision' and related words at all. It was rather thin compared to the amount of subjects considered and inquired into. For example the survey of vessels was as much a topic as the insurances were. None of the results concerning these matters were entered into the Reports.

The Report suggested and recommended to equip the steamers with paddle-box boats and one of her boats should be fitted as a life-boat ready to lower down in cases of people fallen overboard. This was alone sufficient reason and justification for such regulation. This view was supported by commanders of East Indiamen who carried such boats, officers of the coastguard, the annual reports of the Royal Society for the Preservation of Life from Shipwreck, and 20 individual letters to the Chairman of the committee. It also suggested the division of the hull of steam-boats into watertight compartments to prevent the total loss of ship and machinery and to have ample time to prepare the boats and fill them with passengers and/or crew. The committee could not recommend a particular number of transverse bulkheads.²⁴

The second Report of five days later repeated some of the recommendations and added those regarding an investigation into the losses of merchant vessels, and

¹⁹ H.C., 1843 (549.), pp. 313, 317-18;

²⁰ Ibid., p. 95;

²¹ Ibid., p. 214;

²² Ibid., p. 98;

²³ Ibid., pp. 118-19;

²⁴ Ibid., p. vii;

that an international agreement should be achieved to the effect that when steam-vessels met each other both should be required to put their helms a-port.²⁵

²⁵ H.C., 1843 (581.), p. 3;

THE NAVIGATION OF THE RIVER THAMES BEFORE 1847.

The numbers of steam-vessels for passenger conveyance on the River below London Bridge were still increasing and consequently the competition was raising. The racing of steam-boats with reckless consequences towards safety of life of passengers and watermen, the limiting of speed, and the overcrowding of steamers became the main subjects during these years.

Such was the competition that whenever the *Sons of the Thames* started her voyages from London Bridge or Gravesend the Star and Diamond Companies, which had recently joined, sent off one of their boats with reduced fares or even without passengers to race her out. The *Sons of the Thames* was employed by a newly established company for conveying passengers at a lower rate than usual. The old fares of the Star and Diamond Company applied when the *Sons of the Thames* was not sailing.¹

On this particular occasion W. Palin, passenger on board the *Star*, saw the *Sons of the Thames* joining her when leaving London Bridge and the *Vesper* unmooring off Blackwall although being without passengers. All three of them were then racing down-river. When he intended to leave the *Star* at Grays the mate declined to give the order to stop the engine. The person on board the steamer had to release the wherry from the boat-hook to avoid swamping her completely by the backwater of the wheels, when the *Vesper* was just overtaking her with full speed. Before Mr. Palin could enter the boat he fell into the River. The *Star* did not stop to pick him up but continued the race! 50 to 60 passengers immediately went into the cabin to sign a request to the directors of the Star Company to dismiss the mate and captain as he was responsible for this conduct. It must have happened afterwards but the same day that the *Star* crashed violently and deliberately into the *Sons of the Thames* while she was stopping to embark passengers off Purfleet. The damage to the *Sons of the Thames*: bulwarks and starboard ladder carried away, shaft of the engine out of position, and other serious damage!²

The Star Steam-boat Company and its solicitor told of course an entirely different story. The captains declared to keep up this mode of competition. The Lord Mayor

¹ *The Times*, May 14, 1840;

² *Ibid.*, May 13, May 14, and May 16, 1840;

sent Mr. Palin to Mr. Clarks, Clerk of the Peace at the Central Criminal Court, "to learn whether the offence was not indictable, and if it were to proceed by indictment, but if not, to prefer a complaint before the magistrates who had jurisdiction, for the infliction of a penalty."³ Even this was not clear because this incident happened outside the Pool. Next day Mr. Palin turned up at the Thames Police-Court before a magistrate of Essex because this conduct was not indictable ! Mr. Broderip had to admit that there could not be further proceedings for this case was not one of common assault! The steamers were free to go at any speed they like as long as they were not going through the Pool. There they were restricted to five miles an hour but went regularly at a higher rate because the fines (5*l.*) were too low to show any effect. The treadmill and imprisonment only would do so. A Bill for the regulation of steam navigation was before the House of Commons of which he did not know the content. (There was no such Bill before the House. The last failed four years before !) The harbour-master made the suggestion to ask the managers of the companies not to start their vessels at the same time. This was then so ordered by the Lord Mayor and was the only result of this case.⁴

This request was not followed as a writer "Below Bridge" expressed in his letter to the editor. The *Star* and the *Sons of the Thames* carried on racing through the Pool.⁵

There were now so many steam-boats on the already crowded River and consequently so many collisions that half of them (the correspondent seemed to talk about passenger steamers only), had lost their figure-heads and noses.⁶

Another great issue was, as already mentioned above, the overcrowding of passenger steamers especially on Sundays. In July 1842 for example there were 140 steamers plying on the Thames plus those of the General Steam Navigation Company, the Scottish and Irish steamers and foreign vessels. Around 135,000 (!) passengers were reported as having been conveyed between London Bridge and Gravesend and intermediate stations on one Sunday in July which might be exceptionally high but generally not an unusual figure in good summer weather. Five more steamers were announced by the Watermen's Company for spring 1843 and

³ *The Times*, May 13, 1840;

⁴ *Ibid.*, May 15, 1840;

⁵ *Ibid.*, August 27, 1840;

⁶ *Ibid.*, May 5, 1841;

another 30 more for the summer season of that year. A good part of them were passenger steamers.⁷ Still, no law on the number of passengers a steam-vessel may be licensed for existed. Instead they were often so crowded that moving about was entirely impossible. On some occasions the vessels slowly rolled from one side to the other through over-loading and the water was level with the cabin port holes.⁸ On extreme occasions the passengers also climbed onto the paddle-boxes where the captain and/or the pilot were supposed to keep look-out and, as it was custom, to give helm orders to the helms-man by waving the hat!⁹ Even proper rails did not exist. A correspondent suggested to heighten them to avoid people being thrown overboard through the impact of collisions with other vessels and piers.¹⁰ Several other letters on the subject of overcrowding appeared in *The Times* in 1841 and 1842 also asking why there was still no law towards registering, licensing, taxing the steamers, and limiting the number of passengers. Every cab-driver and coachman was so registered.

On 12th September 1842 the harbour-masters gave a notice to the captains of steamers that from now on they were only allowed to go at half speed through the Upper Pool rather than at a certain rate of knots as it was by now. Offences against this regulation will be "seriously noticed" and summoned at the Thames police-office.¹¹

A code of new bye-laws for the regulation of steam-vessels was submitted by the Navigation Committee and the Watermen's Company for discussion with the committee of Aldermen and the Lord Mayor and with steam-boat proprietors and other persons connected with steam navigation. This discussion occupied the four weekly meetings during August 1844.

The proposed regulations were made in pursuance of the Watermen's Act of 1827 and were these: the Company of Watermen and Lightermen shall grant a licence to owners of passenger sailing and steam-boats upon application if used and worked

⁷ In June and July 1844 the Star Steam-packet company alone conveyed 360,000 and 381,000 passengers respectively to and from Gravesend (*The Times*, August 12, 1844). In this early Victorian time it became fashionable and affordable even for the average citizen and the poorer classes to spend especially the weekends outside the crowded and dusty cities in the countryside. The steam-boat companies advertised their sailings to reduced fares daily in *The Times*;

⁸ *The Times*, May 18, 1841;

⁹ *Ibid.*, July 6, 1844;

¹⁰ *Ibid.*, July 30, 1840;

¹¹ *Ibid.*, September 13, and September 19, 1842;

within the limits of the Act. This licence shall contain the number of persons the vessel is allowed to carry according to her admeasurement and a registration number which is to be entered into the company's book. The name of the vessel shall be painted on the outside of the paddle-boxes or quarters in a certain size, the registration number and the number of licensed passengers on the inside of the paddle-boxes or on any other prominent part of the vessel (clause (2.)). For every four square feet of the deck, measured within the gunwale and ten per cent deducted for skylights, companions, steam chests, &c., the vessel shall be licensed for one passenger, infants not to be included (3.). Any master or commander of steam or sailing-boats plying within the limit has to be licensed as such by the Watermen's Company. Any damage to or loss of life and/or property through negligence, unskilfulness, &c. by any such person may result in suspension or cancellation of his licence, &c. (4.). While passing a lighter or wherry or other small craft the steam-vessel shall reduce the speed to prevent small craft from becoming swamped by the swell. Each offence shall be penalised with up to 5*l*. (5.) but nothing was said about payment for damage or loss of craft and cargo. The person in command of the steam-vessel shall be on the paddle-box or bridge where no passenger is allowed and station another look-out in the bows of the vessel (6.). As to lights: steam-vessels navigating up the Thames shall carry two strong red lights 8ft. apart and at least 20ft. above the deck suspended on a foremast-yard or spar or fastened to the funnel and shall carry another red light under the bowsprit. Steamers going down-river shall have the same arrangement with blue lights. If fog prevents the lights from being seen the vessel shall lay before anchor until the weather has cleared (7.). No passenger is to be put on board or embarked as long as the wheels are in motion and they are not to be put back into motion as long as any wherry or boat employed in ferrying passengers is not clear from the steamer (8.). No steam-boat shall go along-side another steam-boat for towing her between London Bridge and Greenwich Hospital (9.). As to speed: westwards of Greenwich Hospital steam-vessels of more than 200 tons burden shall not navigate at a greater rate than six knots with the tide and four knots against the tide and steam-vessels of less than 200 tons burden shall not navigate at a greater rate than eight knots with the tide and six knots against it. For that purpose marks shall be erected on shore by the

Corporation of the City of London.¹² Most of these regulations were developed from the Port of London Report of 1836.

On the first of these meetings (3rd August) the Lord Mayor said that it was the Court of Aldermen who entrusted the City Solicitor and the Watermen's Company to design a new set of bye-laws. Mr. Newdon, for the Watermen's Steam Packet Company, questioned if the Watermen's Company had got the right to such powers as steam navigation had advanced greatly since the Watermen's Act. The Solicitor for the Star Steam-packet Company, Mr. Matthews, objected against clause (2.) because nothing in the Watermen's Act gave them such power. According to Alderman Wood it was decided by the Court of the Queen's Bench that the Court of Aldermen is allowed to make such bye-laws whether the power to grant licences was in the hands of the Watermen's Company or any other body. It was then not clear if the criteria for the number of passengers should be the deck space or the tonnage since different builders estimated the tonnage differently. An increase of fares would be necessary. Clause (5.) on passing lighters and wherries should be altered so that a certain distance should be kept from them. Clause (6.) was confirmed but that to lights (7.) was objected to by Mr. Shadbolt, Secretary to the Steam-shipowner's Association. He would not oppose some improvements to the river-going steam-vessels but there were only very few running after dark. Clause (8.) was agreed to. Clause (9.) was strongly opposed by Sir John Hall of the St. Katherine's Dock Company in a letter which would be discussed later on. The speed as regulated in clause (10.) was discussed controversially until right to the end of the fourth meeting. Mr. Shadbolt opposed clause (10.) and asked for increasing the speed by two knots generally (ten knots with the tide and eight knots against the tide) as necessity to give the vessels steerage way.¹³

The climate of the second meeting was harsh. Mr. Cruden, of the Star Steam-boat Company, said that there was no preamble from which it could be read for what purpose these regulations were made. He stressed that all directors were keen to see some regulation to save life and property but opposed strongly any authorising power by the Watermen's Company as far as it concerned steam navigation. This Company was in his opinion unfit to judge about steam navigation because of conflicting

¹² *The Times*, July 31, 1844;

¹³ *Ibid.*, August 5, 1844;

interests. It was never intended that the Watermen's Company could be the rulers of British shipping. Mr. Cruden was sure that these regulations could be passed if the watermen would be completely excluded. But so far he refused to give any comments on the regulations and refused any collaboration. He also suggested that the regulations would not be obeyed if they became bye-law under the watermen's jurisdiction. Alderman Sir John Pirie saw this acting of Mr. Cruden as a cover up of their real opposition against these regulations for they were not in their commercial interest. This kind of conversation ruled the whole meeting.¹⁴

The third meeting was much more productive and went quite smoothly. Mr. Lang, a former company Director, discussed clause (3.) in the way that he feared for the covering of the companies' expenses. More passengers than proposed in the clause would also add to their safety because a deeper going vessel would be more steady and better answer her helm in difficulties. The paddle-boxes would prevent the vessel from upsetting. He was in favour of clause (6.) and made some observations about clause (7.). He objected to the proposal regarding speed as the companies would be deprived of their chance to compete with the railway. It would also have an effect on the watermen employed in ferrying passengers as they then had to rely on parish benefit. As compromise he suggested that the speed limit was to be put upon the foreign vessels only which for reasons of their deep draught necessarily produced undulation but the sharp bowed light draughted river steamers scarcely left any swell behind. For the latter under 150 tons Mr. Lang suggested 12 knots with the tide and 10 knots against the tide while navigating through the Pool.

Sir John Hall's letter was then read. Besides some comment on the speed Captain Popplewell asked for an additional regulation regarding the departure times of vessels. 15 minutes should serve the purpose of preventing the steamers from racing. In terms of passenger numbers he supported Mr. Lang's view. There was also some conversation that the wherries should be built bigger in response to the progress of river navigation.

The meeting then came to concluding the clauses. Clause (2.) was agreed to, only the price to pay for licences was changed. With a slight alteration for children and that the crew shall not be included in the passenger count clause (3.) was agreed to.

¹⁴ *The Times*, August 12, 1844;

Probably to avoid more conflicts concerning the power of watermen and to regain some control over the steam-boat proprietors clause (4.) was changed in the way that now the magistrates have the power to annul and suspend licences and to impose penalties on persons who acted without a licence. Clause (5.) (slackening speed when passing small craft) was abolished on initiative of Alderman Wood ! Clause (6.) (look-out) was agreed to with an additional clause about fining passengers who deposited themselves on the paddle-boxes. Clauses (7.)-(9.) (anchorage in fog; embarking passengers; towing) were agreed to as proposed. Clause (10.) (speed) was again discussed. Alderman Wood wanted more leeway for this regulation: in some parts of the River the steamers might go at a higher speed but the captains and owners should be made liable for damage of property and destroying lives through racing. Also for giving proper steerage way two more knots than proposed, with and against the tide, should be allowed. He thought this compromise to be a way to see the masters obey the regulation, otherwise he feared for its successful implementation. Sir J. Pirie remarked that much damage was done by shallow draught vessels keeping close inshore. One more knot (7 respectively 5 knots for vessels of 200 tons burden or more, 9 respectively 7 knots for vessels of less than 200 tons burden) should therefore be enough. Sir Pirie's proposal was then adopted.¹⁵

On the last meeting Sir John Hall's objections to clause (9.) were discussed in great length although it was already agreed to as proposed. The discussion did not change the decision. These new bye-laws were thought to come into operation in less than three weeks time. There was no final confirmation on their operation and it can only be assumed that they were approved by the judges.¹⁶

It might have been left with them for there came a new set of rules less than six months later. The article summarised the proposed bye-law which was agreed to in the Committee of Aldermen and supposed to be discussed as the last code. There were no principal or major changes regarding licensing, number of passengers, speed, &c. but some additional clauses concerning only wherries and small boats which were not further described in the article.¹⁷

¹⁵ *The Times*, August 19, 1844;

¹⁶ *Ibid.*, August 27, 1844;

¹⁷ *Ibid.*, February 14, 1845;

Complaints were made by newspapers about the Court of Aldermen of making "a mere noise about regulations for the government of the steamers in the river whenever the press agitated the question, and that the moment the subject gave way to matter of greater excitement their activity abated." The *Observer* put these accusations right in an article which was reprinted in *The Times*, explaining the new code of 19 clauses which were drawn up by the Committee of Aldermen, and after long discussion were delivered to the Court of Aldermen who approved of 18, leaving out that on towing vessels. Only clause (3.) (limiting the number of passengers; same as clause (3.) of above regulations) and clause (9.) (speed) were quoted in this article. The latter reduced the speed of steamers of more than 200 tons between London Bridge and George Stairs, Deptford, to six knots with the tide and four knots against the tide and of those of less than 200 tons to nine knots with the tide and seven knots against the tide, to be calculated by marks on shore which were placed by the Corporation of the City of London. These rules were given to the judges for their approval.¹⁸ Two months later a passenger steamer sank because of her aged condition, luckily without loss of life.¹⁹ The regulations had still not been approved by the judges.

The Watermen's and Lightermen's Company printed placards signed on February 9, 1846 by the Clerk John Benyon of the Company which were displayed at every steam-boat station between Yantlet Creek and Chiswick. The new bye-laws were made by the Court of Mayor and Aldermen for free watermen and lightermen as well as for steam-boat masters and owners in pursuance of the Watermen's Act of 1827 but it gave only the subject headings of the clauses rather than the regulations itself. These concerned licences, speed, lights, the burden, size and dimensions of "wherries, skiffs, and other boats"; and the limit of passengers allowed to carry therein.²⁰ This placard was presented as answer to the Lord Mayor's question about the undertakings of the Company against the dangers of steam-boat travelling.

The "Act for the Regulation of Steam Navigation, and for requiring Sea-going Vessels to carry Boats",²¹ was the first such law after decades of discussions,

¹⁸ *The Times*, June 23, 1845;

¹⁹ *Ibid.*, August 26, 1845;

²⁰ *Ibid.*, April 16, 1846;

²¹ 9 & 10 Vict., CAP. C.;

suggestions, inventions, but first of all of accidents, losses of lives, ignorance and reluctance of authorities was passed on 28th August 1846 and came into operation on 1st January 1847. It made provisions to watertight bulkheads, the number of boats to be carried, passing regulations, &c. The power to establish regulations as to lights was given to the Admiralty which took another one and a half years to do so. The irony: the Thames as the most crowded waterway of the U.K. was exempted from their jurisdiction.

**STEERING RULES AND MODES OF EXHIBITING LIGHTS
AS PRACTISED AND PROPOSED FOR OPEN WATERS
AND FOR RIVERS
WITH SUGGESTIONS FOR SOUND SIGNALS
BEFORE 1846.**

On 30th October 1840 the Trinity House, London published two rules concerning steering orders for avoiding collisions between steam-vessels.¹ The preamble explained the rules as "indispensably necessary" to avoid further calamities involving steam-vessels and referred to the already well established rules for sailing-vessels which were that sailing-ships with the wind free give way to those sailing to windward, that sailing-ships on the larboard tack give way to those on the starboard tack so that they pass on each other's larboard side, and that if two sailing-vessels have the wind at large or abeam and meet they shall pass on the larboard side of each other by both porting their helm. The third rule was not established but a simple development from the second. Because steam-vessels could be considered in their manoeuvring ability as sailing-vessels with the wind free they should keep clear of sailing-vessels. Consequently there were only rules left to be made for two steamers meeting: in open waters both steamers shall port their helms so as to pass at each other's larboard side if they passed so near that a collision would occur if the steamers held on to their courses; in narrow channels steamers shall pass at each other's larboard side. The rules were signed by the Secretary J. Herbert² and subsequently published in all their books.³ They were already practised since 1839 by the Admiralty and H.M. Steam-vessels.⁴

There was an important difference to the Admiralty regulation and also to Lord Howe's rule. In both it was laid down that the vessels shall pass at the other's larboard side but it was left to the commanding persons to decide what action should be taken.⁵ This new Trinity House order made compulsory that in any case both vessels shall alter their course.

¹ *The London Gazette*, November 3, 1840, pp. 2410-11;

² Kemp, J.F., 1973, p. 19;

³ Captain Edward Chappell, R.N.; H.C., 1843 (549.), p. 53;

⁴ See chapter on Regulations for Rivers and Open Waters Before 1840;

⁵ Kemp, J.F., 1973, p. 18; see also chapter on Steering Regulations before 1840;

Both regulations, that of the Admiralty and of the Trinity House, caused many collisions as they were contradictory to the long established and widest spread custom of starboarding the helm to pass at each other's starboard side as it was done on the River Clyde, River Tay, River Humber,⁶ River Mersey, and the Irish Channel⁷ and in coastal waters by vessels of these home waters. But to avoid legal actions for damage in the Mersey the established rule, derived from the traffic rule of roads and city streets where vehicles passed each other in that manner⁸, was abandoned and the port to port passing rule of the Trinity House had to be adopted.

This compulsory order that both vessels had to alter course in order to pass port to port in open waters was later known as the port-helm rule. It might mean to divert from a perfectly safe course, or a course which would need only a slight alteration of the helm, but would not necessarily lead to a passing in the required way, to such which would cross the path of the other vessel only for the sake of fulfilling the legal requirements. This led only to additional and unnecessary confusion and collisions.⁹

This Trinity House, London regulation did not have the legal power of a Parliamentary Act or law but it was recognised by the Courts and had therefore a strong appeal to the captains, masters, and persons in charge of the vessel.¹⁰ These rules can therefore be called the first national steering regulations.

There were no such rules suggested for lighting steamers and/or sailing-vessels. This was the point "Mercator" made in April 1841 in the *Nautical Magazine and Naval Chronicle*. He commented on this set of rules of October 1840 as being only half of what should have been done and mentioned several collisions as practical examples where the lack of a rule for lights was the cause.

It has required the collective wisdom of that useful body of gentlemen on Tower Hill, to witness about a quarter of a century of continual accidents amongst steamers, before they

⁶ At the time of signing the Trinity House order. This was changed shortly afterwards with a new order by the Trinity House, Hull of 25th November 1840; see also chapter on Local Regulations;

⁷ The Mersey, Irish Channel, or Channel were often synonyms for each other;

⁸ *The Nautical Magazine and Naval Chronicle, For 1841*, (Vol. V), p. 340;

⁹ This rule was reduced to "shall pass as far as may be safe on the Port Side of such other Vessel" in the Steam Navigation Act of 1846. The port-helm rule was again introduced into "The Steam Navigation Act, 1851." and consequently controversially discussed in papers, pamphlets, and Select Committee inquiries. Masters and commanders rather went straight for a collision and did not consider to depart from the rule to be not found guilty before the Court as such departure could, due to confusion, result in an accident. The port-helm rule was finally repealed with the Regulations for Preventing Collisions at Sea, 1863; see also chapter on Report on Shipwrecks, 1843;

¹⁰ Kemp, J.F., 1973, p. 19;

could bestir themselves to do what common sense has been calling so loudly for, viz. the establishment of the rule in question,—and probably, after another lapse of years shall have doubled these dreadful losses, it may be found out, that in fact without going further, and insisting upon the proper lighting of these vessels, the rule now promulgated, has accomplished more harm than good !

Mercator suggested a triangle of lights with a pale light at the foremost crosstrees, another at the larboard paddle-box, and a deep red light at the starboard paddle-box. This was exactly the opposite of that practised by the City of Dublin Steam-packet Company, Liverpool. He also objected to the carrying of sails by steamers in English waters because of the greatly increased speed and consequent loss of manoeuvrability.¹¹

The editor of the journal added another paragraph under Mercator's letter quoting a correspondent of the *Hants Telegraph*. His suggestion was that steamers shall by an international understanding be compelled to go under the sailing-vessel's stern. To assure that this rule was obeyed the insurance should be affected if an accident occurred because of the neglect to do so.¹²

Mercator got an angrily written reply from J.C. Shaw, Engineer and Manager to the City of Dublin Steam-packet Company, accusing him of confusion regarding his suggestion of displaying lights on the paddle-boxes. He wrote about the Trinity House regulation:

It has always appeared to me as something very strange, that the East Coast folks are apparently quite ignorant of what is doing on the West Coast.—Is it ignorance ? Is it jealousy of the *application* of inventions ?—[. . .] *No rule of any kind has existed on the East Coast.* All at once "the body of gentleman on Tower-Hill," as the Elder Brethren of the Trinity House, are described by Mercator, drew up a series of nautical arrangements, and recommended that steamers should *port* their helms.

J.C. Shaw expressed his anger and disappointment clearly in the letter. But he was ill-informed himself as there were several east coast regulations which were also contradictory to the Trinity House code.¹³

On 25th February 1841 Viscount Sandon addressed the President of the Board of Trade, Henry Labouchere, in the House of Commons and referred to the numerous loss of life on the seas as result of the absence of a rule regarding steamers how and on

¹¹ *The Nautical Magazine and Naval Chronicle, For 1841*, (Vol. V), pp. 272-73;

¹² *Ibid.*, p. 273;

¹³ *Ibid.*, p. 340;

which side to pass when they meet. He asked if the Government intended to introduce such rules.

The President answered that he already had paid attention to the idea of legislative interference but after discussion "with certain individuals whose authority he considered was of great weight," he realised that they strongly opposed such action. The regulations recently made by the Trinity House and enforced for their own vessels were adopted by the Admiralty and Government steamers and, after circulation, also by merchant steamers. The rules for sailing-vessels and also coaches and vehicles all relied on custom. But a court of law would surely prosecute with heavy penalties any breach of these regulations. Foreign steamers coming into British waters should adopt the Trinity House, London rules but so far there was no communication undertaken with foreign countries.¹⁴

Viscount Sandon must have meant that there was no *law* as there was a *rule*, although optional, recognised in the Courts. Mr. Labouchere was wrong in his statement that the Trinity House had written up the code for their own vessels which was then adopted by the Admiralty and eventually by the merchant marine. In fact, these rules were made entirely for merchant vessels for they were already practised by the Admiralty from whose orders they were derived. This last point was not crucial but it shewed, after all the years of total ignorance of the importance of any steam-vessel regulations, the grasp the politicians had of the subject they were talking about.

The Times printed a letter of "Philo-Nauticus" who wrote a long general statement on the causes of collisions through the want of lights, the unseaworthiness of vessels, and the drunkenness and carelessness of their masters as well as on the reluctance of the Admiralty as being "too passively Conservative a body, contenting itself merely with a drag-chain like prevention of precipitate changes, to take the initiative in any such remedial measure". He recommended the use of the steam-whistle as a warning signal and his own suggestion of displaying three all-round lights hung from the fore-mast in a triangle in a fore-and-aft line. The bright light shall be at the top with the red light facing the stem and the pale green light facing the stern. This should tell the vessel's course in an instant. He also referred to the problems of both vessels following the starboard or port-helm rule to avoid collisions:¹⁵

¹⁴ *Hansard*, Third Series, Vol. LVI, col. 1020-21;

¹⁵ *The Times*, December 8, 1842;

I will just remark, in conclusion, that the rule of two passing vessels respectively porting the helm, or starboarding the helm, the first enforced in the Tyne, and the latter enjoined by the Hull Trinity-house, are by no means adequate to prevent collision under all circumstances. If two meeting vessels each port or each starboard their helms, having time and space for the operation to take effect, they being moreover stem on, their heads will move off in different directions, and a collision will be avoided; but a seaman can understand how, by being placed a very few yards to the larboard or starboard of each other, they may, by the same operation of the helm, be brought into collision.

This passage of his article made exactly the point in 1842 about the port-helm-rule which was endlessly discussed especially after 1851 before it was finally dropped in 1863. But his light arrangement had not worked at all simply because the lights were globular lights and had hung too close to each other. They had appeared as one light and over-powered each other.

A letter by E.K. Calver suggested an Act of Parliament which made compulsory for steamers a light at the hounds of the foremast and another at the bows. His diagram explained that the horizontal distance between the two lights would indicate the course of the steamer and the relative position to each other. Vessels at anchor should show one light, those (sailing-vessels ?) under way should show two horizontally. Foreign countries should adopt the British regulations.¹⁶

As long as there was no ratio of horizontal and vertical distances set out this arrangement would hardly tell anything, as little as just two horizontal lights would.

According to Vice-Admiral P.H. Colomb's summary history of the Rule of the Road and the Report on Mr. Rettie's lanterns by Admiral Charles Ogle, Messrs. Chapman and Company circulated the "Explanatory Cases printed for the Use of the Commanders in the Employ of Messrs. Chapman & Company", issued by the Admiralty with an order of 23rd July 1845 and known as "Chapman's Rules". It contained in a summarising form the existing rules and proposed another new rule that sailing-ships running free shall carry a single light at each bow and those by the wind shall exhibit one light at the starboard bow and two lights at the port bow to distinguish them from steamers with their single mast-head light.¹⁷ *The Nautical Magazine and Naval Chronicle, For 1851* quoted a slightly different rule:¹⁸

¹⁶ *The Nautical Magazine and Naval Chronicle, For 1843*, (Vol. VII), pp. 731-32;

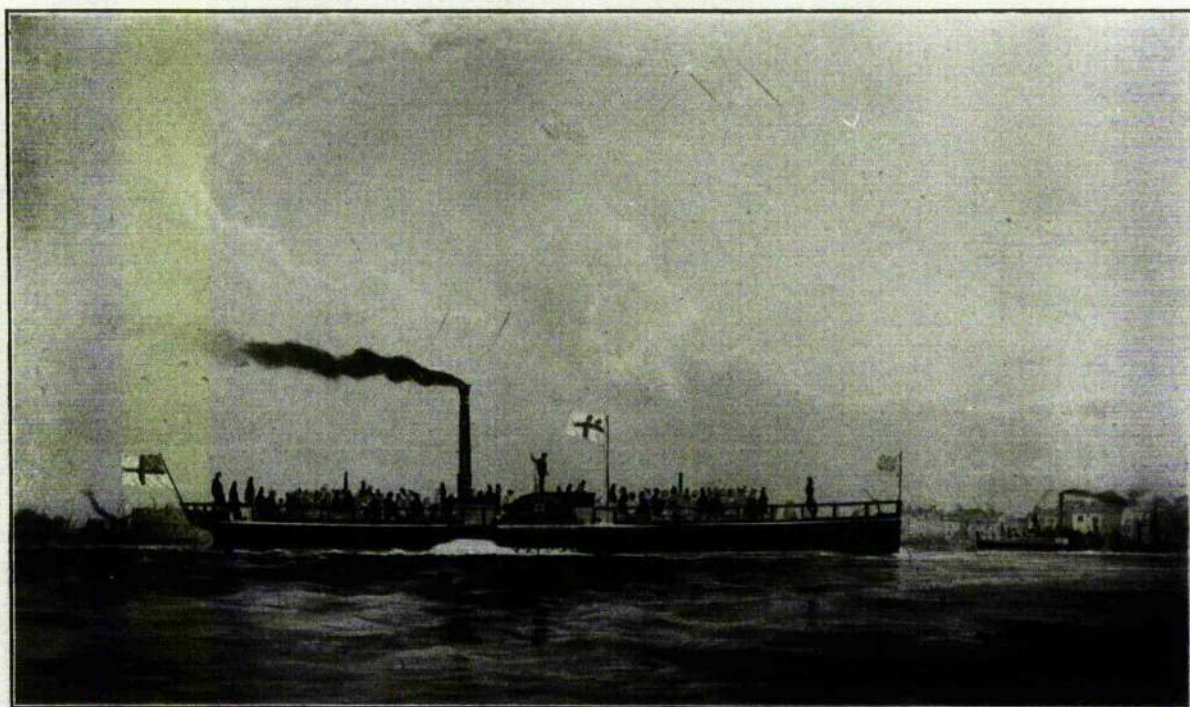
¹⁷ H.C. and H.L., 1895 [C.—7908.-I.], p. 278; H.C., 1846 (568.), p. 2;

¹⁸ *The Nautical Magazine and Naval Chronicle, For 1851*, (Vol. XV), p. 597;

CITIZEN MERCER A, generally known as *CITIZEN A*.—Paddle steamer built for the City Steamboat Co. in 1845 by Ditchburn & Mare at Blackwall. On dimensions 94 feet by 13 by 6 feet depth of hold she had a gross tonnage of 61, and like all the Citizen boats had a good turn of speed. In the middle 'eighties she was renamed *Azalea* by the River Thames Steamboat Co. and subsequently she became one of Arnold Hill's famous teetotal and vegetarian fleet of pleasure steamers, running under the name of the Thames Steamboat Co. She was broken up early in 1908.

(a) Starboard view under steam, off Chelsea. Lithograph 10 1/8 by 16. Inscribed:—"Drawn from nature and on Stone by J. C. Ogle."—"Printed by M. & N. Hanhart."—"The Steamboat *Citizen Mercer A*."—"in Commemoration of the 1st of Augt."—"This Proof is respectfully Dedicated to the Company by their Obedient Humble Servant J. C. Ogle." "London. Published 1st Jany, 1848 by Rowney, Dillon & Co., 51 Rathbone Place."

From: Parker and Bowen, 1928, p. 55.



XXV—CITIZEN MERCER A

A typical Thames passenger steamer of the 'forties, before the White Ensign was reserved to the use of the Royal Navy

That Vessels running with the wind free, (should in the channel) show a light on each bow, so as to distinguish them from ships by the wind.

Part of these rules was, it seems, also this:¹⁹

When Steam-Vessels propelled by steam power in the same direction, but with unequal velocities, near each other, the slower vessel shall keep her course, and shall not obstruct the passage of the faster vessel; the faster vessel on nearing the slower vessel, shall not force her off her course, to prevent collision; or having passed her, shall not obstruct the course of the slower vessel or endanger a collision with her by not giving her a sufficiently wide berth in doing so, under the penalty of—.

This rule was to the opposite effect of those for the River Clyde (if still in use there). As the space for the amount of penalty remained blank it seemed that this rule was not taken further than to a suggestion. A Rule of the Road regarding the overtaking of vessels appeared only with the Regulations for Preventing Collisions at Sea of 1863.

On the annual meeting of the General Shipowners' Society on 12th August 1846 the Committee's Report was read which referred at the very beginning to the collisions at sea and the urgent necessity for some precautionary measures against them. They declared the Trinity House, London regulations as well calculated but remarked that they, although well circulated, were not sufficiently known by the suitable persons. The Report carried on that the Committee was sitting over several projects concerning ships' lights of which some were ingenious.²⁰

They opposed the suggestion to make them compulsory in certain localities but the Committee demanded simplicity and uniformity in the system.²¹

¹⁹ *The Nautical Magazine and Naval Chronicle, For 1851*, (Vol. XV), p. 596;

²⁰ Unfortunately there was no further statement of what kind they were or who developed them;

²¹ *The Nautical Magazine and Naval Chronicle, For 1846*, (Vol. X), p. 541;

**THE STEAM NAVIGATION ACT, 1846,
THE NAVIGATION AND PASSENGER ACT, 1848,
AND THE ADMIRALTY REGULATIONS, 1848.**

More than two years had elapsed since Viscount Sandon's question regarding passing rules for steamers when steam navigation was again a subject before the House of Commons. On 25th April 1843 Sir C. Napier asked if it was intended to require steam-vessels to carry paddle-box boats. Mr. Gladstone, Under-Secretary of the Board of Trade, could not say if there was any proposed enactment, (he should have known that there was not) but the usefulness of these boats would surely be taken into consideration by the Shipwreck Committee which was presently sitting.¹

Another three years had to pass and altogether ten years since the last Bill, concerning the regulation of steam-vessels and passenger's safety, before a new one was laid before the House on the 5th June 1846 by Sir George Clerk: "A Bill For the Regulation of Steam Navigation, and for requiring Sea-going Vessels to carry Boats."² During preparation it was already considered and welcomed by the directors of the General Steam Navigation Company. It was accompanied by communications between the General Shipowners' Society and the Board of Trade throughout the time until it was passed.³ The Bill was read a first time⁴ and contained the following provisions. (1.) Sea-going steam-vessels shall be divided in future into three compartments by two transverse bulkheads, one before and one aft of the engine room. (2.) They shall be provided with two to four boats, of which one shall be fitted out as a life-boat, of a minimum number and size specified in a table according to the steamer's tons burthen above 200 tons and with a dingy for steam-vessels of 100-200 tons with a special arrangement for any paddle-steamers carrying paddle-box boats. (4.) Penalty for non-compliance with (1.) and (2.): up to 100*l.* by the owner and up to 50*l.* by the master. (5.) The Custom-house shall not clear out any sea-going steam-vessel if not being divided accordingly to (1.) and no other sea-going vessel of more than 100 tons burthen which is not supplied with the required boats.

¹ This was the Select Committee on Shipwrecks, H.C., 1843 (549.); *Hansard*, Third Series, Vol. LXVIII, col. 897-98;

² 9 Vict., Bill, 5 June 1846 (367.);

³ *The Nautical Magazine and Chronicle, For 1846* (Vol. X), p. 544;

⁴ *Hansard*, Third Series, Vol. LXXXI, col. 103;

(6.) Steamers shall pass on each other's port side in open waters "as far as may be safe" and keep to the starboard side of channels and rivers "as far as is practicable" (penalty up to 50*l.*). (7.) The Admiralty shall have power to make and alter regulations as to the exhibition of lights which (8.) have to be published in two successive *London Gazettes* to come into operation with the last publication. (9.) These lights have to be shown between sunset and sunrise by all steamers, if under way or at anchor, within ten miles off the coast of Great Britain and Ireland including islands, rivers, and channels (penalty up to 20*l.*). (10.) If this is not obeyed compensations for damage to persons or property cannot be claimed. (11.) During April and October every sea-going steam-vessel shall be certificated for the good condition of hull and machinery by a competent shipbuilder and engineer respectively and such certificate sent to the Board of Trade. Arrangements were also made for those ships which were in foreign waters during these months. (12.) The Board of Trade shall return a certificate of registry thereof and no sea-going steam-vessel shall be cleared out if this certificate cannot be produced. (14.) Any serious accident involving damage to hull, machinery, or property or the loss of life or property through foundering or collision to any steam-vessel shall be reported to the Board of Trade (penalty up to 50*l.*). (15.) The Board of Trade may in such cases appoint inspectors to report upon such accidents, to go on board such vessels to make inspections of the damage, but without delaying the vessel from proceeding on its voyage, and to make inquiries into such circumstances and causes. (16.) They shall also be allowed to take evidence, make further inquiries, examine all related papers, &c. Following clauses deal mainly with penalties and legal proceedings. (30.) This Act shall not include H.M. Ships of War and any vessel not being British registered. It was supposed to come into operation on 1st January 1847.

The Bill's heading suggested that it applied to both river and sea-going steam-vessels, apart from the clause on boats. In fact most clauses applied to sea-going steam-vessels only. River-going steamers were left unregulated. The division of the hull by bulkheads, the supply of boats, the certification of hull and machinery, applied not to river steamers although such boats and certificates were proposed already in Bills of Aldermen Wood, eleven and more years ago, but which failed. Clause (12.) forbade to clear out sea-going steam-vessels without valid certificates but there was

no penalty on the officers of the custom-house for doing so or the master or owner of the vessel for not being able to produce such a certificate. Above that clause (15.) is questionable in so far as the inspector shall not delay the vessel's voyage. To this time there did not exist any local authorities or branches or even a marine department of the Board of Trade. The mentioned inspector was also not a permanent one. Under such circumstances it was nearly impossible to investigate the damage under the required conditions.

Clause (6.) of how to pass in open waters and rivers or channels was adopted from the Trinity House rules but did not state in any way who had to or how it had to be acted upon. The word 'collision' did not appear either but the phrase "shall pass as far as may be safe" was substituted for a strict order to pass on the port side of the other vessel. This wording left a lot of leeway for interpretation which could be advantages for the safety of the vessels and crews.⁵

To keep to the starboard side of the river or channel "as far as is practicable" probably referred to the custom on the Thames to change the sides of the river to profit from the strength of the tide or from the eddies which was herewith recognised and justified.

An amended Bill was issued on 29th July 1846.⁶ Changes were made towards (1.): transverse bulkheads which shall now be fitted to all new iron sea-going steamers only and towards (2.) (sea-going steamer's boats). Those of 100-200 tons now were included into the table with two boats. The tonnage limits for the different classes of boats were also changed. An additional clause (3.) required a hose on sea-going steamers for extinguishing fires which could be connected to the machinery. (5.) The penalty for offences against (1.)-(3.) was now to be paid either by the owner or by the master whoever was in fault. This might have been only a clearer definition of the regulation of the former Bill. Clause (7.) as to meeting and passing in open waters and keeping to one side of the river was unchanged but clause (8.) referring to lights excluded the River Thames above Yantlet Creek from the jurisdiction of the Admiralty. (10.) The zone where the lights had to be exhibited was extended by 10 miles to 20 miles off the British and Irish coasts. (12.) The inspection of the hull and machinery had now to be carried out by a shipwright-surveyor and an engineer,

⁵ See the passing situations on the Admiralty diagram of 1847/48;

⁶ 10 Vict., Bill, 29 July 1846 (533.);

both of them approved by the Board of Trade. The clauses on producing certificates for being cleared out, reporting damages, and regarding inspections remained unchanged.

To exclude the River Thames from the provisions for lights while they applied to the rest of the British islands is not understandable. The excessively crowded River was in most need of such regulation. It was relatively easy to respond to different passing rules as long as they were strictly defined to certain waters. But lights do not cease to be visible behind border lines. It would mean that two different codes of lights would appear in the Thames' estuary and its vicinity.

The change in the clause on inspecting vessels was an important improvement which was meant to assure that steam-vessels, but still the sea-going only, were all surveyed to the same standards and that a shipowner could not choose a shipbuilder or engineer to his best convenience and profitable interests. As to be seen later this proposal did not properly work.

The Bill was again amended and re-committed under the date of 6th August 1846.⁷ It required (2.) only iron steamers of upwards of 100 tons burthen to be fitted with bulkheads at both ends of the engine room. (3.) The table for the number and sizes of tonnage-boats remained unchanged but ordered now that the boat fitted out as a life-boat had to be an additional boat to the tonnage-boats but was compulsory only for sea-going vessels carrying more than ten passengers. Paddle-box boats were regulated in a new clause: (4.) all newly built paddle-steamers shall be supplied with paddle-box boats unless the Lord High Admiral or Commissioners shall exempt the vessel and make some instructions as to other boats in lieu of paddle-box boats. (5.) Hoses had to be provided for sea-going steamers of more than 100 tons burthen only. Clause (14.) on certification now exempted H.M. Packets and other vessels conveying Royal Mail and those employed under the Admiralty. Clause (16.) was added inflicting a penalty of 100*l.* on the owner of sea-going steam-vessels only for not producing the survey declarations and not producing the certificates of registry. Other amendments and changes concerned legal proceedings.

There was only one House of Commons debate reported. It was that of the Committee meeting on 7th August when the clause on paddle-box boats was

⁷ 10 Vict., Bill, 6 August 1846 (588.);

discussed. The question was if these boats shall be made compulsory or optional since it became evident that they were useless. In northern waters they became solidly frozen to the paddle-box, hot climates made them spring leaks, and they also needed half of the crew to unship them because of their weight, which made small paddle-steamers roll heavily.⁸ The paddle-box boats were finally made compulsory but this clause (4.) gave the opportunity to replace them with equivalent boats and the paddle-box boats were only additions to the tonnage-boats while in the earlier Bills the paddle-box boats could replace one or two tonnage-boats.

The final Act, 9 & 10 Vict., CAP. C.,⁹ was passed on 28th August 1846 in a different form again and came into operation as proposed on 1st January 1847. Changes were made to the supply of boats by expressly excluding the whale fishery and also adding two life-buoys to the life-boat. Regarding paddle-box boats these could now replace the life-boat or be replaced themselves with boats approved by the Admiralty. The passing regulation for rivers and channels was amended by a precautionary measure which is to be seen in connection with the Thames custom: "due regard being had to the Tide and to the Position of each Vessel in such Tide". The Admiralty regulations as to lights had to be published in four successive *London Gazettes* to come into operation and published in two successive *London Gazettes* to alter or repeal them.

Clause (XVII.) regarding survey declarations still did not fine river-going steamers for not having a declaration and certificate and consequently was a powerless instrument. The term 'sea-going' was not defined and it remained a question if coasters were included. Lights were not subject to surveys and certification and the limiting of the number of passengers against overcrowding was not even mentioned during the whole of the proceedings. The Trinity House, London regulations were herewith automatically replaced.

Mr. J.H. Ridley, Master in the merchant service, wrote in 1854 in his book *Losses At Sea: Their Causes, And Means of Prevention* a chapter on collision causes

⁸ *The Times*, August 8, 1846;

⁹ An Act for the Regulation of Steam Navigation, and for requiring Sea-going Vessels to carry Boats. [28th August 1846.];

with very practical hints for their avoidance and included a suggestion on lights he made to the Admiralty some time during 1847:¹⁰

In 1847 I was in communication with the Admiralty on the subject of signal lights, and sent plans of those which I considered safest and most practicable. Shortly afterwards, lights on the principle which I had recommended were made compulsory for steamers. To show the advantage of fixed lights, I likewise sent an illustration of the most difficult positions in which ships could be placed where collision seemed almost unavoidable. The positions I refer to were those of three ships meeting, and were the same as those afterwards issued by the Trinity House. The plan which I recommended* for sailing vessels was a lantern so made as to show three different colours intended to be fixed at the end of the bowsprit of large ships, or those lightly laden, which would show their courses and movements by its change of colours. I also stated that small vessels deeply laden, which could not carry a light in that position, should show a lantern of the same sort fitted with screens or doors, when necessary to point out the tack they were on, or if running free. The smallest vessels might, in most of cases, be able to carry coloured lights fixed in the bulwarks under the rails close aft. All lights should be held or fixed in such a position, that they will not blind those in charge, and thus prevent their watching the movements of other vessels.

After searching for several hours through the Admiralty Register of Losses of Ships for the year 1850, I find only about thirty cases of collision recorded. [. .]

* In 1851 I was again in communication with the Admiralty on the subject of signal lights, and was informed that they could not find the plans which I sent in 1847. This appeared very strange to me, as in 1850 I was in Liverpool, and heard that a person from London had been there a few weeks previous, exhibiting a signal light exactly the same as that which I sent to the Admiralty in 1847, to be fixed at the end of the bowsprit.

The Act of 9 & 10 Vict. finally made the Admiralty legally responsible for developing a system of navigation lights. A paper written by the Admiralty on 13th December 1847 described the lack of a uniform system of lights as the cause of frequent collisions with loss of life and property. It also said that up to that date the lights only shewed that there was a ship in the vicinity but not what course she was steering which often led to wrong helm orders. A well considered system had to show that the vessel was a steamer, that the steamer was under way, and the direction the steamer was steering as soon as she has been discovered.¹¹

To this letter was attached a diagram showing the working of this proposed system of a white mast-head light, a green starboard light, and a red port light. It illustrated three crossing, two passing, and an end-on situation. For each of these diagrams a paragraph described what lights were visible in that situation and in some cases the helm action which should follow. The meeting and passing situations on roughly parallel but not end-on courses allowed the steamers to pass red to red or green to

¹⁰ Ridley, 1854, pp. 7-8;

¹¹ H.C., 1851 (696.), p. 31;

LIGHTS FOR STEAMERS.

[To face Page 51.]

When under Way:

- A Bright White Light on the Foremost Head;
- A Green Light on the Starboard Bow;
- A Red Light on the Port Bow, to be fitted with inboard screens.

When at Anchor, Steamers and all other Vessels,

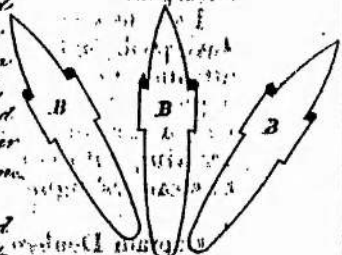
- A Common Bright Light.

The following Diagrams are intended to illustrate the working of the above Plan.

1st Situation.

In this situation, the Steamer A will only see the Red Light of the Vessel B, in whichever of the three positions the latter may happen to be, because the Green light will be hid from view. It will be assumed that the Starboard side of B is towards him, and that the latter is therefore crossing the bow of A in some direction. In Port, A will therefore (if so close as to fear collision) put his helm with confidence, and pass clear. On the other hand, the Vessel B, in either of the three positions, will see the red, green, and mast head lights of A appear in a triangular form, by which the former will know that a Steamer is approaching directly towards him. B will act accordingly.

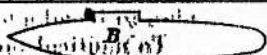
It is scarcely necessary to remark that the mast head light will always be visible in every situation till abaft the Beam.

2nd Situation.

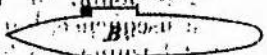
Here A will see B's green light only, which will clearly indicate to the former that B is crossing to starboard. Again, B's three lights being visible to A, will apprise the latter that a Steamer is steering directly towards him.

3rd Situation.

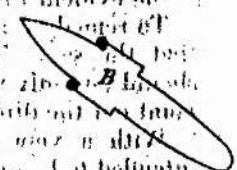
A and B will see each others red light only. The screens preventing the green lights being seen. Both Vessels are evidently passing to Port.

4th Situation.

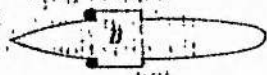
Here a green light only will be visible to each, the screens preventing the red lights being seen. They are therefore passing to Starboard.

5th Situation.

This is a situation requiring caution: the red light in view to A, and green to B, will inform both, that they are approaching each other in an oblique direction. A should put his helm to port, according to the standing rule mentioned in the next situation.

6th Situation.

Here the two colored lights, visible to each, will indicate their direct approach towards each other. In this situation it ought to be a Standing Rule that both should put their helms to Port. This rule is already pretty generally adopted, but it would add to safety if it were made imperative, for it is evident that without some rule of this kind well understood and practised, it will be impossible to guard at all times against accidents in the situation of the two Vessels here given.



SUPERVISION OF STEAMERS' LIGHTS.

Report on the
Supervision of
Steamers' Lights.Captain Denham's REPORT on the Necessity of the SUPERVISION of STEAMERS'
LIGHTS.Office of Committee of Privy Council for Trade,
Whitehall, 13 August 1849.

Sir,

I AM directed by the Lords of the Committee of Privy Council for Trade to transmit to you the accompanying letter from the Admiralty, with its enclosure, on the subject of the inefficient state of the lights of steam vessels at the port of Liverpool.

I am to convey to you the desire of my Lords that you should, whilst at Liverpool, and the other parts to which you are about to proceed, direct your attention to this subject, and that you will communicate with the surveyors approved by this Board, under the 14th section of the Steam Navigation Act, with a view of ascertaining how far their services may be made available for carrying out the regulations laid down by the Lords of the Admiralty relating to steamers' lights.

Captain Denham, R.N.,
&c. &c. &c.

I am, &c.
(signed) G. R. Porter.

LIGHTS FOR STEAMERS.

Admiralty, 13 December 1847.

THE great increase in the number of steamers, and the want of an adequate and uniform plan of lights, has of late years occasioned an infinity of accidents from vessels running foul of each other in the night, involving, not only a serious destruction of valuable property, but also a melancholy loss of human life, and without the most diligent and attentive consideration, as to the best plan to be adopted to obviate such disasters, the evil is likely to increase.

To nautical men it will readily appear that the generality of the accidents alluded to is attributable to the want of means to ascertain promptly the direction in which a vessel may be steering, at the moment she is first discovered, at night; for, when a ship's light is first perceived in a dark night, the observer is merely informed that there is a vessel in the direction of that light, but he is still ignorant of the course she may be steering. He has no means of ascertaining immediately (what is all-important at this critical moment), whether the strange sail may be steering directly towards him, or whether she may be standing in some direction across the bows either to starboard or to port. In this doubt, the helm is frequently put the wrong way, and a collision is the consequence, but another, and perhaps the first and most important point to determine is, whether the light when seen is that of a steamer, and if so, whether she is under weigh.

Here then is a palpable defect in every mode of night-signals hitherto adopted—the evident source of frequent damage and loss of life.

To remedy this deficiency nothing more would appear to be required, than that the same light which announces the approach of a vessel in the dark, should not only indicate that it is a steamer, and under weigh, but should also point out the direction of her head.

With a view to supply this great desideratum, the following is the plan intended to be generally adopted—(Vide Diagrams, opposite.)

The manner of fixing the coloured lights should be particularly attended to. They would require to be fitted, each, with a screen of wood or canvass on the inboard side, in order to prevent both being seen at the same moment from any direction but that of right a-head.

This is important, for without the screens (a principle first introduced with this plan), any plan of bow-lights would be ineffective as a means of indicating the direction of steering.

Report on the
Supervision of
Steamers' Lights.

This will be readily understood by a reference to the preceding illustrations, where it will appear evident, that in any situation in which two vessels may approach each other in the dark, the coloured lights will instantly indicate to both the relative course of each,—that is, each will know whether the other is approaching directly or crossing the bows, either to starboard or to port. This intimation is all that is required to enable vessels to pass each other in the darkest night, with almost equal safety as in broad day, and for the want of which so many lamentable accidents have occurred.

It might prove of infinite service, combined with the above plan of lighting steamers, if all sailing vessels were provided with a green and a red lantern, to be shown by hand on the starboard or port bow, according to the side on which a vessel might be approaching.

If at anchor, all vessels, without distinction, to exhibit a common light.

From: H.C., 1851 (696.), pp. 31-32.

green without altering the course to pass in a certain way as ordered in the Steam Navigation Act of 1846. The fifth situation, two steamers approaching each other in an oblique direction, ordered the vessel having the other in her green section to give way by porting the helm. The last diagram shewed two steamers end-on, displaying the triangular of lights to each other. Both shall port their helms and consequently pass port to port as this was by now quite well understood and should be made compulsory.¹²

The paper also described the way the side-lights had to be screened: with inboard screens of wood or canvas "in order to prevent both being seen at the same moment from any direction but that of right a-head", being, according to the paper, the first introduction of screens. It suggested further that sailing-vessels should have a green and a red lantern ready for exhibition by hand to be shown only on the respective side where another vessel might be approaching. All vessels, including sailing-vessels, at anchor shall exhibit a common bright light.¹³

There was nothing particularly said to the angle of the arc of the horizon the lights shall describe, the size and especially the length of the screens, where on board they had to be placed, where they had to be placed relative to the foremast, nor the size and shape of the lanterns and lenses, their height above deck and the distance of visibility although this was the subject of committee proposals, Bills, and local regulations before. The diagrams only shewed that the side-lights were visible over about one third of the horizon and consequently abaft the beam, respectively two thirds for the mast-head light.

Clause (6.) of the Steam Navigation Act of 1846 only required that vessels pass port to port "as far as may be safe". This phrase sounded rather like a suggestion which the masters or commanders were free to abandon if there was a safer way to pass. Before this background the Admiralty steering 'rule' for situation no. 4 could be understood as an interpretation of rule (6.). Did the Admiralty realise the danger of the port-helm rule to make such suggestion as in the fourth situation of the diagram ?

On 15th December 1847 the Admiralty sent letters to the superintendents of H.M. Dockyards. They explained that the suggested system was ordered to be fitted to west coast mail-steamers of Liverpool, Holyhead, and Pembroke. This concerned

¹² H.C., 1851 (696.), facing p. 31;

¹³ Ibid., pp. 31-32;

at least six companies.¹⁴ It seemed that earlier experiments were made by the Admiralty in Portsmouth which proved that at a distance of three miles the red light was as powerful as the white light while the green light was at its limit. Beyond that distance both side-lights became unusable but were sufficient for steam-vessels passing each other. The Admiralty then ordered all H.M. Steamers to be supplied with screens and these lamps, available in two sizes and two classes.¹⁵ Before this order shall come into operation, supposedly in March 1848, sufficient time should allow the masters of steamers to become familiar with this plan. Until then every support through descriptions of the lights, the illustrative diagram, and through the sending of an officer as to the placing of the lights and screens should be given.¹⁶

The Trinity House, Hull was sent an order by the Admiralty under the date of 12th January 1848 for regulating H.M. Vessels and merchant ships. It contained the above described lighting arrangements for the mast-head light, the side-lights and the anchor light. The paragraph on the usefulness of a red or green hand held lantern to be shown by sailing-vessels appeared again in this order.¹⁷

It might well be that the Admiralty sent this order round to all Trinity Houses. As a remainder ? To make sure that the rules were well known or already obeyed when it came to the publication in *The London Gazette* ?

Eventually the order as to steamer's lights was signed on 29th June 1848 and published in *The London Gazette* on 11th July. It came into operation on 21st July 1848.¹⁸ All British steam-vessels had herewith to exhibit the above described lights between sunset and sunrise in British waters of up to 20 miles off the coasts, except in the Thames above Yantlet Creek: the mast-head light had to be visible at least 5 miles in a clear dark night over an arc of 20 compass points, from right a-head to two points abaft the beam on each side of the vessel and the coloured side-lights at least two miles over an arc of 10 points from right a-head to two points abaft the beam on their

¹⁴ These Companies were:

The British and North American Royal Mail Company (later Cunard Steam Ship Co.);

The British General Steam Packet Company;

The Glasgow and Liverpool Steam Packet Company;

The Chester and Holyhead Company;

The Peninsular and Oriental Steam Packet Company;

The West India Royal Mail Steam Packet Company;

¹⁵ *The Nautical Magazine and Naval Chronicle, For 1851*, (Vol. XV), p. 592;

¹⁶ H.C., 1851 (696.), pp. 32-33;

¹⁷ National Maritime Museum, Library, 342.537 Gre B 9568;

¹⁸ *The Times*, July 1, 1848;

respective sides. They had to be fitted with inboard screens of at least 3ft. long in a fore and aft line with the inner edge of the side-lights "to prevent them from being seen across the bows". The anchor lantern had to be shown by any vessel and shall show the light all around the horizon.¹⁹

There was some uncertainty about the meaning 'across the bow'. Peter Samson, Board of Trade Surveyor in 1895, believed that the lights shown before these instructions crossed under the bowsprit or even abaft the stem²⁰ and that the screens were fitted to prevent that but that it was surely intended to let the rays cross the keel-line: the steamers shown end-on in the diagram saw the other's triangle of lights. The side-lights were still called 'bow lights' in 1895.²¹ From the fact that the screens were allowed to be made from canvas it is to be assumed that chocks were not invented and in use. They seem to have been appeared as late as 1868 with the Board of Trade instructions to surveyors regarding side-lights.²² Before that date the difference in the length of the screens and the lack of instructions as to the size of the lantern or, more precise, the distance of the wick to the screen resulted in different angles the lights were crossing over the fore and aft line, with 5° or 6° at least to 8° or 9°²³ or even 10°.²⁴ The only other 'screens' used before were the ships' sides, sometimes worked out of the bulwark rails.²⁵

This system of three lights is the basic layout of the system as we still know it today. The arc of the horizon over which the lights were shown are still the same today, screens were introduced with instructions how to fit them, and obviously some thoughts were spent on the issue of crossing rays, some nearly fifty years before the Committee on Screening of Ships' Side-lights. Overall it was the first governmental attempt at standardisation of the mode of exhibiting ships' lights.

Henry Labouchere, President of the Board of Trade, was asked in the House of Commons on July 25, 1848 about his intentions against the overcrowding of steamboats on the Thames. (It is remarkable that he was asked regarding the Thames

¹⁹ *The London Gazette*, July 11, 1848, p. 2606; this order was for some reason reprinted in *The London Gazette* of May 29, 1849, pp 1763-64, under the date of 28th May 1849;

²⁰ H.C. and H.L., 1895 [C.—7908.-I.], p. 21;

²¹ *Ibid.*, pp. 15, 17;

²² *Ibid.*, pp. 15, 21;

²³ *Ibid.*, p. 34;

²⁴ *Ibid.*, p. 21;

²⁵ *Ibid.*;

only !) He referred to the Act of 1846 which asked for declarations and certificates for both sea-going and river-going steam-vessels but imposed penalties only on sea-going steamers for not having a certificate. River-going steamers could get away without it. The only possible means of asking the steam-boat owners to call for a surveyor or be met with severe punishment in case of accident were taken. But the Government should adopt more regulatory measures.²⁶

A week later Mr. Labouchere spoke again before the House to bring in a Bill which proposed to put river-going steamers under the same law as sea-going steam-vessels. The other object was to limit the number of passengers on river-going steam-boats and of these especially those on the Thames. The Board of Trade therefore should be empowered to limit that number for the sake of the safety of passengers.²⁷

This Bill was issued under the same date as that of the debate of August 1, 1848, agreed to and read.²⁸ It is arguable why this Bill went so quickly through the House without any changes made to important clauses. Clause (I.) inflicted an additional 10s. fine on every steamer, "whether such Steam Vessels be intended to proceed to Sea or not". for each day of delay of sending the required survey declaration to the Board of Trade. The number of allowed passengers shall be inserted into the certificate and a penalty of up to 5s. be paid for every passenger over the allowance (clause (II.)). The certificate shall be put up at a noticeable part of the vessel or the owner shall be fined up to 10l. (III.). Other clauses regarded penalties against persons forcing their way on board, &c. The Act was passed on 31st August 1848 and came into operation on that day.²⁹

This Act was supposed to remedy situations where river-going vessels could convey passengers without being surveyed and certificated. But the sum of 10s. per day as the only penalty was easily earned through overcrowding the vessel which was itself penalised but impossible to observe and enforce since there were obviously no officers employed for doing so. At least no report was printed that a master or owner had to pay. The Act did not show any effect at all and the passenger vessels on the

²⁶ *Hansard*, Third Series, Vol. C, col. 811-12;

²⁷ *Ibid.*, col. 1073-74;

²⁸ 12 Vict. A Bill For the further Regulation of Steam Navigation, and for limiting, in certain Cases, the Number of Passengers to be conveyed in Steam Vessels. 1 August 1848 (576.);

²⁹ 11 & 12 Vict., CAP. LXXXI. An Act for the further Regulation of Steam Navigation, and for limiting in certain Cases the Number of Passengers to be conveyed in Steam Vessels. [31st August 1848.];

Thames continued to sail massively overcrowded, even well after "The Steam Navigation Act, 1851."³⁰ They had partly corrupted survey certificates as "Humanitas" wrote in two letters. In one case the engineer surveyor supplied the certificate although he had seen the steam gauge to be without mercury. The pressure gauge was never repaired at all and the steamer blew up sometime later in Bristol.³¹ In the other case an old river steam-boat was due to be surveyed. The M.P. for that borough recommended two shipwright surveyors to the Board of Trade to appoint one of them. The article carried on:³²

Who, will it be believed, were the disinterested persons thus recommended to determine on the safety and perfect fitness of this passage boat, which often embarks above 100 persons at a time, to be conveyed about 10 miles ?

The first was one of the principal owners of this vessel, and the second was this owner's foreman, and the latter was appointed. What will Mr. Labouchere and my Lord Granville say to this impartial mode of survey of a vessel where human life is daily at stake ?

The Admiralty orders of 1848 as to lights were not promptly obeyed. Robert Lamont, Liverpool, the Principal Manager of the Glasgow and Liverpool Royal Steam-packet Company, expressed in an early letter to the Admiralty his opinion that "a person" at each principal port in the U.K. should be stationed to inspect the lights and declare them according to the result. He repeated this statement in his letter on 20th July 1849 to Forrest & Bromley in Liverpool³³ and explained that a large number of steamers was not fitted with lanterns in the required manner. His suggestion could be easily put into operation if the surveyors for the hull and machinery would also survey the lights regarding their efficiency and position and include them in their report. If done so it would not mean any additional expenses on either side.³⁴

This letter was immediately sent off as an enclosure to a letter of Forrest & Bromley which confirmed Robert Lamont's point even stronger. Since the Admiralty order was signed in June 1848 the steam-boat proprietors explained that they would only supply their lanterns with coloured glasses but would not make further expenses unless they will be forced to do so. The steam-boat owners put profits before safety

³⁰ *The Times*, June 8, June 13, and July 27, 1853;

³¹ *Ibid.*, August 13, 1850;

³² *Ibid.*, October 1, 1850;

³³ *Gore's Directory of Liverpool and its Environs*, 1849, p. 210: Forrest and Bromley, glass dealers & stainers, 19, Old Haymarket;

³⁴ H.C., 1851 (696.), p. 34;

and less than one in ten steam-vessels was sufficiently lighted or obeyed the regulations. Messrs. Miller & Co., London,³⁵ to whom this letter was addressed was asked to put this subject before the Board of Trade. Forrest & Bromley supported strongly the appointment of an inspector.³⁶

With an additional short note these two letters were then redirected to Captain W.A.B. Hamilton, R.N., Secretary to the Admiralty, on 23rd July 1849 with the suggestion that this bad state of lighting steam-vessels would not only be found in Liverpool but in any other port of the U.K. as well.³⁷

A week later G.R. Porter, Secretary to the Board of Trade, received a letter from Captain Hamilton which was followed by a request on 13th August to Captain Henry Mangles Denham, R.N. and Inspector of the Board of Trade, that he, while proceeding to Liverpool and to other ports,³⁸ shall explore the possibility of directing the inspection of the surveyors, being approved by the Board of Trade, to the examination of steamer's lights.

The first reply came from Bristol and was signed by three Board of Trade surveyors on 22nd August 1849. They saw no obstruction at all to this request but suggested that the lights should be inspected whenever there was an opportunity and not only every half a year. They also were in favour of a meeting of all Board of Trade surveyors in order to instruct them in this matter before October next, the month of the half-yearly inspections of hull and machinery. The surveyors made also the points that the bow lights should be housed in cases or spare lamps be kept, that plate glass should be used instead of hemispherical lenses as they dim the lights, that the lamp-houses be properly ventilated as this was often found to be a reason for inefficient lights, and that the diagram and regulations should be produced to the masters while surveying the lights. There would be no difficulty in the port of Bristol to supply the number of lamps needed for the purpose. But their most important point

³⁵ *Watkin's Commercial and General London Directory and Court Guide for 1852*, . . . , p. 1852: Miller & Sons, wax chandlers & oil mer. & lamp makers to the Admiralty, 370 Oxford street, & 179 Piccadilly;

³⁶ H.C., 1851 (696.), p. 33;

³⁷ *Ibid.*;

³⁸ The other ports were those of the west coast as he was at this time engaged on the subject of Irish immigration;

was that sailing-vessels should be required to carry the proper lamps and be supplied with the diagram and regulations for steam-vessels.³⁹

All six surveyors of Liverpool agreed unanimously on 4th September 1849 to include the survey of lights into their duties. They recommended one piece of spherical glass for the bow lights and two such pieces joined together for the mast-head light to show an unbroken circle of lights. To establish a proper triangle the surveyors wanted the bow lights positioned abreast the foremast as far as the fore-shrouds and gangway would allow.⁴⁰

Captain Denham summoned a conference in the Custom House in Glasgow on 5th October 1849 which was attended by the two Greenock surveyors and Messrs. Robertson, Barclay, and Curle of Glasgow⁴¹ itself. They visited several steam-vessels where Captain Denham explained in practice the plan of exhibiting lights. In response some minor corrections were instantly done by the masters or owners.⁴² Although the surveyors of Glasgow did not sign the Report on which they obviously agreed, this letter gave their shared opinion. They welcomed the additional survey and asked for additional copies of the Act and the diagram to supply them to the masters and owners of steam-vessels who objected. They also wanted the power to order the proper fittings or to report the names of the steamers, masters, or owners and were confident that the numerous steamers which still did not comply with the regulations would, after explanation, adopt the plan for their own safety. Refracting lenses would be the most efficient of which the manufacturers in Glasgow produced plenty. An additional code for sailing-vessels in rivers and channels should be made compulsory by enactment. Although sailing-vessels shewed lanterns with a lit candle when in steam-vessel's tracks numerous collisions occurred.⁴³

On 30th October 1849 Captain Henry Mangles Denham sent his Report on the inspections of vessels in the ports of Liverpool, Bristol, and Glasgow to Sir Denis Le Marchant, Bart., of the Board of Trade. He wrote that the visits confirmed for him the ignorance and disregard of the owners and masters towards the regulations and of the

³⁹ H.C., 1851 (696.), pp. 38-39;

⁴⁰ Ibid., p. 38;

⁴¹ *Glasgow Post Office Annual Directory for 1854-1855*, p. 609: SHIP BUILDERS. Barclay, Robt., and Curle, 59 M'Alpine st.;

⁴² H.C., 1851 (696.), p. 34;

⁴³ Ibid., p. 39;

inefficiency of the lights. The prompt and positive response of the surveyors in every respect was of great importance. Quoting the opinion of the surveyors of Liverpool Captain Denham described the lights actually in use and how they were fitted.⁴⁴

The suggestion from Liverpool to supply the lamps with a spherical glass for each bow light meant a glass describing a circle over ten compass-points. It would ensure an unbroken light over the required 112° as ordered by the Admiralty



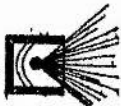
⁴⁵ In fact some owners supplied their vessels with square

lamps with insufficient reflectors. The bow and outside jamb also obscured the light



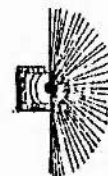
. As mast-head lights they used again square lamps

which enclosed the burner and reflector on three sides and emitted light only through

the front plate glass, consequently to an angle of around 90° only, (thus  a-head)

which was far below the required 224° . This could be solved by an appropriate lens but was only seldom adopted. Two pieces of glass were joined together for economic

reasons. A lantern constructed with such a lens would throw the rays thus



and diffuse the rays over the required 20 compass points.⁴⁶

To achieve a triangle of lights as perfect as possible the surveyors of Liverpool suggested to place the bow lights as abreast the foremast as possible and so giving immediate indication of the course of the observed steam-vessel by avoiding excessive distortion of the triangle. This arrangement could take the lights down from their exposed position on top of the paddle-boxes into sheltered housings where they

⁴⁴ H.C., 1851 (696.), p. 34;

⁴⁵ None of these five drawings is in any way accurate but gives the principal idea;

⁴⁶ H.C., 1851 (696.), p. 35;

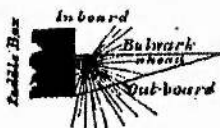
could be properly trimmed. Their thoughts of how to arrange the lights on mast-less ferry boats steering at either end showed their thorough attention to detail.⁴⁷

The letter and statements from Bristol supported some points Captain Denham had made before in his collision reports. These concerned the protection of the lamps in housings, the readiness of spare lanterns, and the necessity of sailing-vessels to have a code for the exhibition of lights when a steam-vessel is approaching.⁴⁸

The long statement of the surveyors of Greenock and Glasgow and those of Bristol and Liverpool expressing the same results was evidence enough to show the great necessity of a simple and commonly recognised system of exhibiting lights. The surveyors were anxious to be appointed to proper authorities and to be supplied with circulars for distribution. Captain Denham recommended that these circulars should be amended by clause (XII.) and (XIII.) of the Act but that the words "within 20 miles of any part of the coast of Great Britain or Ireland" be omitted.⁴⁹

The Admiralty approved the Lanterns of Miller & Co.⁵⁰ which led the steam-vessel owners to believe that only these lamps should be purchased. But this was not the case. This again was either doubted by the owners, commanders, and agents or used as an argument to keep the old lamps until they were worn out before replacing them with those fulfilling the requirements of the regulations. The agent for the City of Dublin Steam-packet Company, Lieutenant Saarsfield, presented lanterns of their own construction to Captain Denham who inspected and tested them. The hollow made lenses were filled with a red and a green liquid respectively which showed the light much brighter than the solidly coloured lenses of Miller & Co. Suppliers of good lanterns in Liverpool were A. & R. Brown and in Bristol and Glasgow Simmons and Gray. Another source for bad lights could be the burner itself as some consisted of just a candle or a swinging oil trough enclosed by plate glass which was quickly blinded by smoke. In some other cases the best lamps were placed simply in the

corner of the bulwark with the paddle-box



making it therewith

⁴⁷ H.C., 1851 (696.), pp. 35-36;

⁴⁸ Ibid., p. 36;

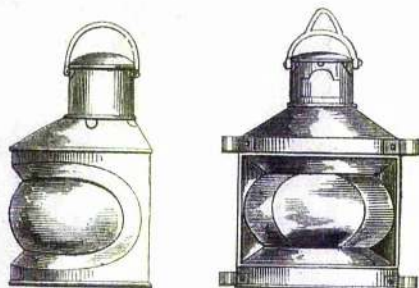
⁴⁹ Ibid., pp. 36-37;

⁵⁰ Great Exhibition 1851. Official, Descriptive, and Illustrated Catalogue, Class 22.—General Hardware, including Locks and Grates, No. 645, pp. 662-63;

From: *Official Descriptive and Illustrated Catalogue of the Great Exhibition of the Works Of Industry Of All Nations*. Part III. Section III.—Manufactures, Class 22.—General Hardware, Including Locks and Grates, 1851, pp. 662-663.

645 MILLER & SONS, 179 Piccadilly, and 370 Oxford Street
—Inventors, Manufacturers, and Proprietors.

Patent Admiralty regulation lights: bright light at the foremast head, green light on the starboard side, red light on the port side, to be used when under weigh. The form of these lights may be seen by the annexed cuts.



Miller & Sons' Patent Admiralty Regulation Lights.

A common bright light, to be used by all vessels at anchor. Model of a steam-vessel, showing how these lights are placed. The cut on the opposite page represents a steamer with the regulation lights. It shows the proper position for these lights, in order to obviate the confusion likely to arise from the curving of the rays of light over the bows of the vessel.

The following are the Admiralty Regulations which have been adopted since 1840 by all maritime nations :—

A bright light at the foremast head, green light on the starboard side, red light on the port side—to be used when under weigh. A common bright light, to be used by all vessels at anchor. The green and red lights are so placed at the side of the vessel that the rays of the lamps cannot cross the bows. In this manner it is easy to ascertain the position and the course of the vessel, and to avoid collision with her, since the coloured lights give the most certain indication as to whether she is in the starboard or larboard tack.



Steamer with Miller & Sons' Regulation Lights.

The following statement has been published by Capt. Denham, F.R.S., which shows statistically the importance of these regulations.

Consequences of collision at sea to British steamers and sailing-vessels, 1845 to 1849.

	SUNK.	DAMAGED.			TOTAL.
		Seriously.	Considerably.	Slightly.	
Steam Vessels	9	9	18	190	296
Sailing Vessels	270	180	668	1,720	2,838

Showing a total of 3,064 cases involving more or less life and property at sea, apart from losses through bad navigation and stress of weather, but chiefly attributable to want of lights and look-out.

Hand, cabin, and deck lamps, various. Carriage-roof lamp, with an improved reflector; and a tricolour hand lamp. Railway, tail, and side lamps. Engine and buffer lamps. Wheel, searchers', and water-gauge lamps. Station platform lamps (registered). Double semaphore lamp, a substitute for two lamps.

Table, bracket, and back lamps. Reading lamps. Gig and dash-iron lamps. Hand and night lamps and lanterns. Police, pocket, and reflecting lanterns, for reading at night, and other purposes. Improved stable lamps, for suspending from the ceiling or wall. Wax illuminators. All of a peculiar construction, having short separate wicks, instead of ordinary cottons.

impossible to throw any rays abaft the beam, they were exhibited without screens or screens of the wrong size, or were displayed on top of the paddle-boxes where the sea could extinguish the lights. Others carried additional lights or no regulation lights at all. Some masters or owners even thought it to be sufficient for small vessels to show less powerful lights than larger vessels.⁵¹

To omit some words of clause (XII.) of the Act of 1846 as Captain Denham recommended in his note of 1st November 1849⁵² was probably meant to introduce the lighting system into waters beyond the 20-mile-limit and even into international waters through the backdoor. It would create an interim state until according orders or enactments were made. This would make sense since there had been an agreement between France and Great Britain concerning lights, obviously concerning lights only and to the effect that France adopted fully the British system, and it was now also about to be adopted by all Swedish steamers.⁵³

In a letter of the Board of Trade of 26th December 1849 Captain Denham was asked to repeat his investigations now into ports of the east coast while inquiring into certain steam-vessel accidents. After having visited the ports of Leith (two surveyors), Newcastle (four surveyors), North Shields (one), Sunderland (two), Hull (two), Yarmouth (three), Ipswich (one), Portsmouth (two), and Southampton (one) (there were altogether 77 shipwright surveyors registered at the 37 ports of the U.K.) he submitted his "Report on the Systematic Supervision of Steamers" of five pages on 19th February 1850.⁵⁴ This Report resulted principally in the same answers as that on the west coast ports but, as the title implied, was written with a much wider view regarding the surveys of steamers and the employment of surveyors.

Captain Denham proceeded generally in the same way as he did before. Being allowed and supported in any possible way by the collector of customs to use the custom-house of each port for the conference held with the local surveyors he discussed the subject as being part of their important duty, explained the practical side, and handed out to them the diagram and instructions. They considered the clauses (X.)-(XIII.) of the Act of 1846 and Captain Denham closed the discussions

⁵¹ H.C., 1851 (696.), p. 37;

⁵² Ibid., p. 32;

⁵³ *The Nautical Magazine and Naval Chronicle, For 1849*, (Vol. XIII), p. 103;

⁵⁴ H.C., 1851 (696.), pp. 40-41;

with three questions to the surveyors before they went to the docks to inspect the lights.⁵⁵

These questions were: "How have you found the Acts to work, and what does your experience suggest for the purer working of them?"; "Do any steamers allude survey, and from what causes?"; "From your knowledge of the practice of steam-tugs, ought they to be exempted or not?" Summarising the answers they amounted to this: The owners had the choice between too many surveyors. One surveyor might have given the required certificate while another refused it before. They did not have the legal power to question the owners of steam-vessels unless invited to and had to rely entirely on internal hull surveys as they could not order a vessel into dry dock. Coasters, river steamers, and tugs assumed that they were exempted from the Act because they were exempted from being regularly cleared out by the custom-house. They from time to time conveyed an unlimited number of passengers as there was no clause on passenger licensing. The steam-tugs were seen as a threat to life and property and should therefore be strictly surveyed as the safety of mail, passengers, vessels in tow, &c. depended on the tug's condition of hull and machinery. Other steamers tried to get around the survey by putting the mail they contracted to carry on all of their steamers. The fees for the surveyors depended on the owners of whom some complained that they were too expensive. The surveyors appointed by the Board of Trade and the tide-surveyors should have the power to demand a steam-vessel's certificate which should include the lights and the number of passengers licensed. They also should be empowered to withdraw the certificates after collisions or running aground. The steam-vessels should be prevented from going to sea until the damage was repaired and a new certificate issued.⁵⁶

During their rounds through the docks the surveyors experienced the ignorance of the masters and owners towards lights. Some said they did not know about the regulations at all, some carried their older lights together with the regulation lights, or displayed the three colours from one single lantern.⁵⁷

In addition to the tugs and passenger vessels there were over 100 coastal steam-vessels on the Tyne which were a serious obstacle to the better or perfectly equipped

⁵⁵ H.C., 1851 (696.), p. 40;

⁵⁶ Ibid., pp. 43-44;

⁵⁷ Ibid., p. 41;

larger sea-going vessels. One particular instance involved the Northern Lighthouse Board whose engineer Alan Stevenson had lately been in London at the Board of Trade and was informed that the Bill had not gone through ! (In fact it had gone through four years before.) Consequently he sent the lights he already had in use a-shore and some other masters as well adopted the view that it was only optional to exhibit these lights.⁵⁸

At the end of the day the surveyors signed two paragraphs:⁵⁹

The undersigned having met Captain Denham, R.N., at this port by appointment, and he having read to us the Board's proposition, and having explained to us the nature of the fittings and the desired operation of all steamers' lights,

"We have no hesitation in asserting our belief, from local experience, that such official supervision is vitally necessary to ensure uniformity on so important a point in navigating our rivers and coasts, as well as the high seas. And the said system as diagramed by the Admiralty being perfectly within our comprehension, hereby undertake to blend it with our usual duties as surveyors."

Captain Denham lamented about the current state of survey as half of the 1008 British registered steam-vessels abuse the Act of 1846 in it's fourth year and remain unsurveyed.⁶⁰ Also the fact that he had made 44 suggestions in 18 reports for the avoidance of accidents should be reason enough to rework the Act again as already announced by Mr. Labouchere last session.⁶¹

But this Report made an important additional point which led to its title. The number of casualties had already gone down by 50% compared to three years ago. With a view on further reduction of steam-vessel accidents after the new Act the surveys and surveyors should be made payable themselves by imposing a fee on the owner of the steam-vessel for each certificate. A sum between 1*l.* 1*s.* and 3*l.* 3*s.* for each of the 2016 certificates per year according to the tonnage of the vessel could amount to nearly 3,000*l.* a year. With a payment of just over 2,100*l.* to the surveyors about 870*l.* would be left per annum as salary and expenses for a permanent inspector. He could function as a constant negotiator between the surveyors and the owners and as a person of reference between them. It would also be possible to attend the places of steam-vessel accidents at once. The situation now was that the Board of Trade had

⁵⁸ H.C., 1851 (696.), pp. 41-42;

⁵⁹ Ibid., p. 40;

⁶⁰ For reasons see above;

⁶¹ H.C., 1851 (696.), p. 42;

to wait for the reporting of the accident, then it had to be considered if it was worth inquiring into it before eventually a commission could be gathered together and the journey begin. Meanwhile valuable time was lost and important witnesses out of reach. This kind of proceedings was responsible for two thirds of accidents not being visited and mainly caused through the absence of regular Government funds for this service which would be provided by the proposed scheme.⁶²

The Report recommended that the Admiralty system of lights should also be adopted by foreign nations since steam-vessels trading from foreign ports did not recognise this system. It should also be made compulsory for sailing-vessels.⁶³

⁶² H.C., 1851 (696.), pp. 42-43;

⁶³ Ibid., p. 44;

“THE MERCANTILE MARINE ACT, 1850.”
AND THE
ESTABLISHING OF THE MARINE DEPARTMENT OF
THE BOARD OF TRADE.

The British merchant marine was physically in a terrible state during the first third of the 19th century although it was the biggest due to monopolised trade as a result of the navigation laws. It was not only the depressed state of freight rates but also the lack of competition which made the masters and shipowners lethargic and careless. Mr. Hume, radical M.P.,¹ quoted some figures before the House on February 15, 1848:²

It appeared from the report of the Committee on Shipwrecks of 1836, that in addition to the ascertained number of persons drowned in the years 1816 to 1818, and in the years 1833 to 1835, the entire crews of 49 vessels were lost within the first period, and the entire crews of 81 vessels in the last period, whose numbers were not known; but, taking an average of 10 men to each vessel, this made a total loss of life, for the first period, of 2,228 persons, and of 2,686 for the last. The loss to the community, during the last period, amounted to 8,510,000*l.*; and when it was recollected that this estimate included only the losses entered in Lloyds books, he undervalued the loss to the public when he took it at 3,000,000*l.* annually.

Americans and British North Americans applied new innovations and improvements to their vessels and kept the wages low for fewer seaman. They also had the advantage not to have to import timber for shipbuilding. Great Britain instead rather stuck to old customs and stopped investing more capital. They were soon overtaken by the Americans with their fast clipper ships.³ The results were dreadful:⁴

Just about everything was wrong.⁵ Ships were badly and cheaply constructed. Lloyd's Register encouraged negligent building because it automatically classified all new ships as first-class for a few years, then at the same age for all ships it gave them an inferior classification. Thus it mattered little what kind of wood was used in their construction and how well they were maintained. Repair in general was much neglected because rotted or broken timbers could often be hidden and certain beams and planking would receive full stress only in a storm which the ship might never encounter. Furthermore design was faulty. Flat bottoms were frequently used so that ships could rest on the bottom of harbours at low tide. And the method of tonnage measurement, upon which port and light dues were based,

¹ Palmer, 1990, p. 88;

² *Hansard*, Third Series, Vol. XCVI, col. 669;

³ Prouty, 1957, pp. 31-32;

⁴ *Ibid.*, pp. 32-33;

⁵ Like all generalizations, this description ignores the many exceptions; that is, the good shipowners like the East India, the Peninsular and Oriental, Cunard, and other companies;

encouraged owners to build ships which were too long for their width. A constant complaint was that ships carried inadequate equipment of all kinds for investigation, for repair, and for life-saving. Ships were improperly or excessively loaded, especially those in the Atlantic timber trade where the bulky cargo was loaded on deck with the result that in a slight storm the ships became unseaworthy.

Masters and Mates were unqualified; they received little or no schooling, had too little experience and were not examined for competence or knowledge, even for navigation. They were frequently drunken and irresponsible. Seamen were even more the subject of complaint. Ill-fed, badly quartered, irregularly paid, they were often cheated into signing-on by crimps, and so abused on board that they deserted in the first port of call.

Navigational aids, although improved every year, were still inadequate. Lighthouses were too few and too weak. Light and pilot dues were sometimes too high. Charts were inaccurate and there were not enough harbours of refuge.

The method of insurance did not encourage the bad owners to reform, for although they paid higher rates than the good owners who were known to be better risks, they were usually paid in full for their losses. Underwriters were silent in the agitation for improvement because they received high enough fees to cover their losses; losses which were small since so many were responsible for the loss of any one ship that no one underwriter felt a single loss unduly. The method of insuring ships continued to be blamed for losses for many years. As late as the seventies, Samuel Plimsoll blamed ship losses on the indifference of the underwriters.

The Government played a disorganised role in maritime affairs during the first half of the 19th century. The shipping interests were divided between altogether nine departments including the Admiralty for the supply of seamen, the Treasury for the Customs, and the Colonial Office and the Land and Emigration Commissioners for the passengers. Before decisions could be made a huge amount of semi-official correspondence had to be dealt with. The refusal of responsibility by a single department was a common thing and the question was so referred to another. That caused often such a delay that a decision was no longer necessary.⁶

Of the many local shipowners' societies formed it was the General Shipowners' Society in London, established in 1831, which became the most important in representing and helping the shipping interest of the country. Aaron Chapman, Shipowner and later Conservative M.P. from 1832-47,⁷ on the founding meeting of that society:⁸

Other interests had their representatives: and how much more advisable would it be that they also should be represented, that whenever any thing respecting that interest was brought under consideration there might be a competent body to whom they might refer. In every question connected with the shipping interest, it must be advisable that Government should have a body to whose sense and opinions at large they might refer.

⁶ Prouty, 1957, p. 34;

⁷ Palmer, 1990, p. 24;

⁸ *The Times*, June 10, 1831;

Government intervention was wanted by some to reduce cargo and ship losses, to study meteorology, or to reform the method of tonnage admeasurement. Some groups were concerned about the social conditions of masters, crew, and passengers as a result of anti-slavery consciousness.⁹ Others opposed reform through Government. But the bad state of the shipping industry made the need for governmental intervention more and more obvious. Pamphlets like *Naval Discipline. Subordination contrasted with insubordination; or, a view of the necessity for passing a law establishing an efficient naval discipline on board ships of the Merchant-Service, etc.*, of 400 pages written by Christopher Biden in 1830, which concluded that disasters at sea resulted from insubordination and another pamphlet of 1833 entitled *The True Causes of the Numerous Wrecks of Merchant Shipping and an Appeal to the Nation in the Causes of Humanity, to Apply the Remedy*, written by a Surveyor, added to the pressure on the Government.¹⁰

As early as 1826 the Committee of Investigation into the Registers, appointed two years before, came to the conclusion that a really efficient register society needed Government subsidy. But the Board of Trade could not offer any money and consequently the question was dropped. Lack of subscribers forced the *Lloyd's Registry of Shipping* (or *Green Book*) of London and the *Red Book* of the Shipowner's Register to join in 1833 under the name of *Lloyd's Register of British and Foreign Shipping*.¹¹ The reorganisation of the society in 1834 meant also the establishing of a General Committee which was especially responsible for the society's rules and for those regarding ship construction and maintenance.¹² The General Shipowners' Society gave its approval.¹³ The new register was a source of information on ships' condition but also on the number and causes of shipwrecks.¹⁴

Two years later, in 1836, the Government finally responded with a Report "to inquire into the Causes of the increased Number of Shipwrecks, with a view to ascertain whether such improvements might not be made in the Construction,

⁹ In 1833 an Act was passed for the emancipation of the slaves in the British dominions: 3 & 4 Will. IV., CAP. LXXII. An Act for carrying into effect Two Conventions with the King of the *French* for suppressing the Slave Trade. [28th August 1833.];

¹⁰ Prouty, 1957, pp. 35-36;

¹¹ Wright and Fayle, 1928, pp. 305, 328-29;

¹² Lloyd's Register of Shipping, *Infosheet No. 31*, p. 2;

¹³ Wright and Fayle, 1928, p. 329;

¹⁴ Prouty, p. 36;

Equipment and Navigation of Merchant Vessels, as would greatly diminish the annual Loss of Life and Property at Sea;"¹⁵ This was the first Report which investigated the whole of the shipping industry while earlier ones inquired only into boiler explosions, shipwrecks of steam-ships, or were simply returns regarding Government vessels.¹⁶ The first remedy the Committee suggested was the formation of a Mercantile Marine Board in London to direct, regulate, and superintend the merchant marine of the U.K. with equal attention to the interests of shipowners, merchants, and underwriters, and to the public interest to preserve national capital from being lost at sea. Above all it should pay attention to the safety of the entire crew. The Committee even made proposals of how to compile the Board. The next paragraph recommended a code of maritime law in which existing laws should be completed by other statutes so as to "clearly and accurately define the relative duties and obligations of shipowners officers and seamen; with a view to supply the remarkable defect under which Great Britain now labours, in being almost the only maritime country of the world in which no such special code of maritime law exists".¹⁷

The Government did not show any interest in the subject and left the introduction of a Bill to a private member, James Silk Buckingham, who had already

¹⁵ H.C., 1836 (567.); for the different headings of investigations see chapter on Report on Shipwrecks, 1843;

¹⁶ These were:

A Return of all Vessels Lost, through Shipwreck, in the Navy, since the 1st January 1814, to the latest Period they can be made out; stating, likewise, the Lives that were Preserved. H.C., 1 *July* 1816 (529.);

Report from the Select Committee on Steam Boats, &c. with The Minutes of Evidence taken before the Committee. H.C., 24 *June* 1817 (422.);

Report of the Select Committee on Steam Navigation, together with The Minutes of Evidence and an Appendix and Index. H.C., 14 *October* 1831 (335.);

Return of all Vessels lost through Shipwreck in the Royal Navy, since 1st January 1816 to the latest Period the same can be made out; stating likewise the Lives that were Preserved, and the Places where the Vessels were severally Lost. H.C., 26 *February* 1833 (28.);

Return of the Names and Descriptions of all the Packet Vessels that have been lost since the transfer of the Packet Establishment to the Admiralty; with the Number of Persons on Board at the time of their leaving the last Port, and the circumstances attending such loss, whether by foundering or otherwise, as far as the same may be known. H.C., 30 *July* 1834 (538.);

Return of the Names and Stations of the Post-Office Packets which have been on Fire during the last Three Years, specifying the Date of each Fire, and whether at Sea or in Harbour; also the Extent of Damage done, the Expense of Repairs, and Length of Time the Vessels were unfit for Service; also stating if the Coals are usually stowed against the Boilers; also any other means possessed by the Masters of the said Packets of extinguishing Fires, than of scuttling the Decks. Also showing the Names of those Post-Office Packets which are supplied with Fire Engines, and those which are not. H.C., 14 *June* 1836 (327.);

¹⁷ H.C., 1836 (567.), p. viii;

for several years protested against the abuse of seamen. His Bill drew some of its clauses from the suggestions of the Report.¹⁸

This Bill of 9th March 1837¹⁹ proposed to establish in London a Marine Board of seven members of whom four shall be nautical men who have been at least ten years in service at sea and of these at least five years in command of a ship; one member shall be an experienced master shipbuilder with at least ten years experience, another a professor of nautical astronomy and navigation, and finally the seventh a member of the legal profession with at least ten years experience at the bar. The nautical men were to be appointed by the Admiralty, Trinity House, the Shipowners' Society, and Lloyd's; the shipbuilder by a senior master shipbuilder in H.M. employment; the professor by the Astronomer Royal at Greenwich; and the legal person by the Lord Chief Justice of the King's Bench.

The Board shall be authorised to employ skilful and experienced surveyors and to employ examiners to examine officers and commanders of the merchant service for seamanship and navigation. They shall also be empowered to institute a court of inquiry into every British shipwreck; to sit as a marine Court over disputes between shipowners, merchants, and underwriters; to examine and report upon all plans of improvement in maritime affairs; to open negotiations with maritime authorities of foreign countries regarding shipwrecks and the preservation of lives from shipwrecks; to grant authority to open branches in certain other major ports; and to grant certificates of registry to ships built, repaired, equipped, &c. according to rules of the Board. The term 'ship' meant both sailing as well as steam-vessels above 50 tons burthen.

The question of Government interference into the private shipping industry arose again. This amount of detail in the Bill was not wanted by Poulett Thomson, President of the Board of Trade from April 1835-39, who pointed out that the greatness of the British merchant marine came from the non-interference of the Government into their matters. Nevertheless the Bill viewed its first reading.²⁰

¹⁸ Prouty, 1957, p. 37;

¹⁹ 7 Will. IV. A Bill For the Establishment of a Marine Board, and for the better Regulation of the Merchant Shipping of the Kingdom. 9 March 1837 (102);

²⁰ Prouty, 1957, p. 38;

The shipping community objected strongly. The General Shipowners' Society said at their annual meeting:²¹

Valuable as are some of the suggestions contained in this Report, they are satisfied, from practical experience, that many of the evils adverted to are not susceptible of remedy by Legislative enactments, and they anticipate the universal concurrence of Ship-Owners in their conviction, that compulsory regulations with respect to the form of construction and general mode of equipment of Ships, would be fraught with consequences so pernicious in themselves, and so subversive of the best interests of British Maritime Commerce, that it would be their duty strenuously to resist any such attempt.

The Bill of 13th April 1837²² was amended by a clause which empowered the Marine Board to prepare a code of maritime regulations regarding a minimum standard of strength of ships' scantling, fastenings, and planking; a minimum scale of supply with anchors, cables, spares, cordage, sails, provisions, and water; fixing certain rules for the loading of ships on particular voyages (deck cargo); a minimum standard of knowledge in seamanship and navigation for captains and officers; and regarding rules and orders for the discipline of officers and men in the merchant service.

The opposition was even stronger when this Bill was brought in to be read a second time on 7th June 1837. President Thomson said that it was so faulty in detail "which were calculated to destroy the whole mercantile law of this country, and to establish in its place a new and arbitrary power." The Marine Board would also cost too much. Vice-President Henry Labouchere thought this Bill to be an annoying interference into and a blow for the shipping interest. George Frederick Young, Whig M.P. from 1831-38,²³ Shipowner and Shipbuilder himself, and President of the Shipowners' Society, called the Bill a "legislative monstrosity." In the division about half of the Select Committee voted against a second reading.²⁴

Two years later before the Select Committee on Shipwrecks of Timber Ships, 1839 G.F. Young said:²⁵

²¹ Prouty, 1957, quoted after B.O.T. papers I, 329 in the P.R.O.;

²² 7 Will. IV. A Bill For the Establishment of a Marine Board, and for the better Regulation of the Merchant Shipping of the United Kingdom. 13 April 1837 (193.);

²³ Palmer, 1990, p. 24;

²⁴ *Hansard*, Third Series, Vol. XXXVIII, col. 1222-27;

²⁵ H.C., 1839 (333.), p. 57;

The interference of the Legislature with the transaction of commercial affairs I hold in principal to be exceedingly objectionable; but I think that where the interests of humanity are concerned, that general principle ought to give way; and that even if the shipowner were to sustain pecuniary loss therefrom, which in this instance I do not think he would, yet still the Legislature is not only justified in exercising such interference, but is bound to carry it into effect.

Even years later the shipping interest opposed Government interference. In the month before the Report on Shipwrecks, 1843 was presented, in July, the General Shipowners' Society said:²⁶

Repeated experience has compelled your Committee to regard with no inconsiderable distrust the practical proceedings of Committees of the House of Commons. Whatever the motives and intentions of those at whose instigation they may be appointed, they afford so convenient a means for placing on record any description of opinion however remotely bearing on the subject of inquiry and the opinions thus recorded, however visionary, are so frequently rendered the basis of attempts at practical legislation . . . [that we are suspicious of the present inquiry into the causes of shipwrecks].

The Report on Shipwrecks inquired very briefly into the establishing of a Marine Board but only because James Forrest, Lieutenant R.N., brought this into his examination before the Committee. He wanted the temperance and character of a future master examined by a Marine Board as was already required for pilots. This Board shall also investigate into causes of losses of ships at sea and draw up a code of maritime laws:²⁷

I would also state my opinion that there is a necessity for a code of maritime laws to be established for the internal government of ships, with regard to the discipline and number of the crew, the berthing of the crew, the survey of ships, loss at sea; and in fact to embrace everything connected with mercantile shipping. At present it is perhaps an anomaly in history, that although there is a fleet of 30,000 ships belonging to this country, there is no law established for the internal government of those ships; a master of a ship does not know how far he can go, and the crew take advantages from not knowing the extent of the master's authority. The mercantile navy, I have no hesitation in saying, will never be what it ought to be till a maritime code is established; and for the purpose of carrying those matters into effect, I propose the establishment of Marine Boards at the principal seaports of the country.

The shipowners who maintained good ships and employed well trained seamen realised that good reputation was the best way to avoid legislative interference. They even organised the examination of masters and mates themselves as in the port of Sunderland. That Marine Board, self-elected out of the committee of shipowners,

²⁶ Prouty, 1957, p. 40, quoted after the General Shipowners' Society meeting, July 12, 1843;

²⁷ H.C., 1843 (549.), pp. 25-26;

made examination in seamanship and navigation compulsory before the master was given a command and it seemed that they only allowed foreign vessels into their port when its master had earlier been examined before them.²⁸

While minutes of evidence were taken for that Report James Murray, of the Foreign Office, sent questionnaires to all consuls asking for their opinion about the state of the British merchant marine. He wanted to show the necessity of a governmental Marine Board with authority over the commercial marine to oppose those of foreign countries which took advantage of the British situation. Seventy-two of the seventy-five returned reports repeated many of the causes for the decline of British shipping as seen by the Committee of the Shipwreck Report. But they also said that the many Acts and their administration was another reason for this confusing state and recommended a Department of Mercantile Marine. James Murray summarised the answers in a circular to other Government departments and added that the shipping industry looked upon the Board of Trade in regard of everything connected with trade and that a Department of Commercial Marine should be established as a kind of supervising body to other departments connected to this industry. Within four months the Admiralty was asked by the Board of Trade to develop a plan for such a department but due to their occupation with railway questions in 1844 and 1845 this plan was not taken further than in correspondence.²⁹

Only towards the end of this decade did Parliament make time to discuss maritime issues. By now the Board had in fact slowly built up a maritime code through legislation in single issues like pilotage, lighthouses, rules of the road, meteorology, ships' registry, tonnage admeasurement, steam-ship survey, cargo stowage, shipmasters' examinations, seamen's fund, seamen's registry, emigrants, coal-whippers, and life-saving. It was relatively easy to bring in and pass Bills on single subjects rather than to interest and concern Parliament about more comprehensive subjects and Bills. But it became clear that such an Act would be necessary. In 1848 Mr. Labouchere, now Whig President of the Board of Trade from 1847-52, said before a Select Committee on miscellaneous expenditure about the handling of mercantile questions.³⁰

²⁸ H.C., 1843 (549.), pp. 43-44;

²⁹ Prouty, 1957, pp. 41-42;

³⁰ Ibid., pp. 88-89;

They are dealt with partly by the Admiralty and partly by the Board of Trade; principally by the Board of Trade; but we have no professional assistance at the Board of Trade of our own, competent to enable us to come to a correct decision, very frequently, upon the points that arise with regard to them. In the Bill which I have adverted to I have proposed to establish a department of Mercantile Marine, composed of unpaid officers, of which the members shall be the President and the Vice-President of the Board of Trade, one of the Naval Lords of the Admiralty . . . one or two persons connected with the merchant navy, probably the Deputy Master of the Trinity House, and some one of the most competent of the Elder Brethren of the Trinity House, or some other person connected with the commercial marine. My opinion is, that a Board of that description would be most valuable in dealing with all questions that relate to the mercantile marine of the country. The want of it is very much felt.

Finally he had recognised the necessity of an authoritative and supervising Government body after he had opposed this so strongly ten years before. This Bill he spoke of before the Committee was that of 25th May 1848³¹ which was also proposed to reorganise the superintendence of lighthouses but failed.

In a general debate before the House on 12th July 1849 Mr. Labouchere said:³²

The general principle of that Bill was to substitute for the inadequate and imperfect control of the Privy Council over these several bodies in England, Scotland, and Ireland, an efficient control by a Government board of management.

In this debate on the mercantile marine and the repeal of the Navigation Laws Mr. Labouchere was very much aware that he had to encounter the opposition of the shipping industry. His first proposal was to reorganise and lower considerably the lighthouse dues by existing legislation, the second to abolish the necessity of taking licensed pilots in certain circumstances through bringing in of a Bill this session, and thirdly to leave for consideration until next session the condition of the merchant marine as regarded the character and qualifications of masters and mates, the discipline of the crew, and the general well-being of the whole service. It was for the want of discipline that the British whale fishery was lost to the Americans and for the want of agreements between seamen, employers, and Government that 14,000 seamen had deserted from their vessels in one year. The Report of the Board of Health about the sanitary conditions on board vessels was disastrous. The President carried on:³³

³¹ 11 Vict. A Bill For establishing a Board for the Consideration of Matters relating to the Mercantile Marine of the United Kingdom, and for making further Provisions for the Supervision of Lighthouses. 25 May 1848 (358.);

³² *Hansard*, Third Series, Vol. CVII, col. 214;

³³ *Ibid.*, col. 227-28;

It unfortunately happened that at present no department of the Government was in any degree responsible for the condition of our mercantile marine. The Admiralty and the Board of Trade—whether with or without professional advisers—were under no responsibility whatever. He proposed to give in this matter authority to the Board of Trade, and with authority responsibility; but, in order to effect all the objects that he had in view, it would be necessary to create or derive from the Board of Trade a department—not a board—but a Department of Mercantile Marine. He proposed that there should be attached to that Department of Mercantile Marine two persons who had been captains in the merchant service of the country. He thought that if any office were to be constituted, possessing executive authority in many important respects over the mercantile marine, that marine had a right to expect that some members of their own body, cognisant of their feelings, and able to give advice on this class of subjects to the President of the Board of Trade, should be attached to such a department.

He further proposed that shipping officers should be stationed in the ports, after the example of Quebec, who should take care of the condition of seamen regarding diet, wages, registry, &c. Other matters he wanted to include in this Bill were punishment of the sailors, log-books, and the Merchant Seamen's Fund. Mr. Labouchere got support from other speakers and leave was given to bring in a Bill for pilotage and another for improving the condition of masters, mates, and seamen in the merchant service.³⁴

On 11th February 1850 the President of the Board of Trade explained before the House of Commons his three measures to improve the mercantile marine. About a Marine Department he said:³⁵

He proposed, in the first place, to constitute a department of the mercantile marine as a part of the Board of Trade, who should be responsible to the country and to Parliament for carrying into effect the provisions of the Bill, and who should exercise a general superintendence over the mercantile marine of this country. He had long felt the necessity of such a superintending power, and that the interests of the mercantile marine had suffered from the want of such a department. At present the superintendence of the merchant navy was divided between the Admiralty and the Board of Trade, and, with regard to the latter body, they were without the professional knowledge requisite to enable them to deal with the subject. If the responsibility, therefore, of superintending the merchant navy were thrown altogether upon the Board of Trade, as it seemed desirable should be done, it would be absolutely necessary to give the department some professional assistance. The mercantile department of the Board of Trade would, therefore, include two captains of the merchant service, who would sit as members, and assist the President of the Board of Trade in everything that related to the mercantile marine.

The House ordered that day three Bills: for improving the condition of masters, mates, and seamen, and maintaining discipline in the merchant service; for regulating

³⁴ *Hansard*, Third Series, Vol. CVII., col. 212-48;

³⁵ *Ibid.*, Vol. CVIII, col. 668-69;

the Merchant Seamen's Fund; and for the regulation of the admeasurement of the tonnage and burden of merchant shipping.³⁶

The Times responded to the Bills on the following day with a leading article. It described them as "an indispensable supplement to the great act of last session", the repeal of the Navigation Laws. The correspondent wrote in length especially about the current social condition of the seamen and was entirely behind this "kindly 'interference' of their betters."³⁷

The opposition complained much. The General Shipowners' Society and G.F. Young, its President, met on 22nd February 1850 to address five resolutions to Mr. Labouchere of which the second asked for a release "from interference in his pursuits, and from all burdens and restrictions of a disqualifying character." The fourth and fifth resolutions recommended a letter to the President of the Board of Trade asking for a withdrawal of the Bills and a general inquiry into the laws and regulations connected with British commerce and trade.³⁸

The Times wrote in another leading article on 4th March 1850:

To shipowners it is a measure of relief, not a bill of penalties—to the Protectionist squire it is a matter of profoundest indifference; and yet not improbably a strong opposition to the measure will arise from the combination of Radical shipowners, who wished the principles of free trade to be applied in every case but their own, with the "phalanx" of discontented agriculturists who are displeased with the application of liberal theories of economic science in any instance whatsoever. It will be a grievous thing for the public interests if the combination of the men of inconsistency with the men of sullenness should be effected to impede the progress of a most desirable reform. [...] If they employ at present proper masters and mates, those masters and mates will still continue in their employment; if they are incompetent, they will be debarred from employment. What is it the shipowners are fighting for? The right of employing incompetent and ignorant officers to command their ships?

The Bill for Improving the Condition of Masters, Mates, and Seamen, and maintaining Discipline in the Merchant Service was also subject of discussion in the Liverpool Chamber of Commerce. It was of the "opinion that that object may be effectually accomplished in a way calculated to meet the views entertained by the

³⁶ 13 & 14 Vict. A Bill for Improving the Condition of Masters, Mates, and Seamen, and maintaining Discipline in the Merchant Service. 15 February 1850 (55.);

13 & 14 Vict. A Bill for Regulating the Merchant Seamen's Fund. 15 February 1850 (56.);

13 & 14 Vict. A Bill for The Regulation of the Admeasurement of the Tonnage and Burthen of the Merchant Shipping. 15 February 1850 (57.);

Hansard, Third Series, Vol. CVII, col. 666-99;

³⁷ *The Times*, February 12, 1850;

³⁸ *Ibid.*, March 4, 1850;

majority of the shipowners, without infringing the principle of the bill as now proposed." They further suggested that a clause should be added to the Bill which empowered large seaports such as Liverpool to elect a local board to carry into effect the measures of the Bill: to appoint examiners, shipping masters, &c. The Board of Trade shall receive periodical statistical returns from that Board and retain a veto to any appointment. In the Chamber's opinion, but left open for further discussion, this board shall consist of shipowners and magistrates. A present Bill should only include the unobjectionable clauses to build a basis as the objectionable clauses should be discussed for a Bill next session.³⁹

Mr. Labouchere agreed with having examiners in several ports but a uniformity of the system and standard of examination could not be achieved in the suggested way. Experience had shown that local bodies fell into disrepute, laxity of practice, &c. He saw the proposed measures rather as police regulations than as interference into trade matters.⁴⁰

Another leading article of *The Times* referred to this discussion, pointed out the crucial difference between these parties, and called the opposition of Mr. Young and his friends simply senseless and undistinguishing. This Bill was directed only against the bad shipowners but not against the good ones who already do what they were supposed to do as men of humanity and common honesty.⁴¹

The three Bills were withdrawn in favour of a single consolidating Bill⁴² which had its first reading on 19th April 1850. Before the second reading on June 20 Mr. Labouchere stressed that the Bill was supported by the majority of the shipping industry. The first object of the Bill was a compulsory system of examination of masters and mates in the merchant marine with the power of discharging such person for incompetency or delinquency. The second object was to end the system of crimpage which was as bad as in no other country of the world. The third object was that of discipline to prevent desertion. The greatest objection brought forward was the fear that this piece of legislation would centralise too much power in the Board of Trade in London. To avoid this Mr. Labouchere planned to institute local Boards in

³⁹ *The Times*, March 11, 1850, Letter of 2nd March 1850;

⁴⁰ *Ibid.*, letter of 5th March 1850;

⁴¹ *Ibid.*, March 11, 1850;

⁴² 13 & 14 Vict. No. 2. A Bill for Improving the Condition of Masters, Mates, and Seamen, and maintaining Discipline in the Merchant Service. 19 April 1850 (248.);

ports with more than 30,000 registered tons in the foreign trade, to be composed of twelve members of which six were elected by shipowners with more than 500 tons in foreign trade, four shipowners by the Board of Trade, and the Mayor or Provost with the stipendiary magistrate. After a serious discussion the Bill was read and printed as amended.⁴³

The House went into Committee on July 8, 1850 and the Bill was finally passed on 14th August 1850 as "The Mercantile Marine Act, 1850."⁴⁴ The Board of Trade was defined as "the Committee of Her Majesty's Privy Council appointed for the Consideration of Matters relating to Trade and Foreign Plantations." 'Ship' was defined as "every Description of Sea-going Vessel." The Act was then divided into the following sections: (V.) Board of Trade and Local Boards; (VI.) Conduct and Qualifications of Masters and Mates; (VII.) Registration; (VIII.) Shipping Offices; (IX.) Engagement of Seamen and Commencement of Employment; (X.) Advance and Allotment of Wages; (XI.) Health, &c. on Voyage; (XII.) Provisions for checking Desertion; (XIII.) Discipline on Voyage; (XIV.) Naval Court on Voyage; (XV.) Log Books; (XVI.) Payment of Wages and Discharge of Crews; (XVII.) Powers of Investigation; (XVIII.) Procedure; (XIX.) Evidence taken abroad; (XX.) Application of Monies; (XXI.) East Indies and Colonies.

The function of the Board of Trade was defined in clause (6.):

6. And be it enacted, That the "Board of Trade" shall undertake the general Superintendence of Matters relating to the *British Mercantile Marine*, and shall be authorized to carry this Act into execution, and to enforce by legal Proceedings or by such other lawful Means as may seem to it expedient the Provisions of this Act and of all other Acts and Laws relating to the *British Merchant Service*, and may also open an Account or Accounts with the Bank of *England* in the Manner and for the Purposes herein-after mentioned,

Local Marine Boards shall be established at seaports with 30,000 or more registered foreign-going tonnage and at other ports as the Board of Trade may appoint therefor. The Board members shall be the Mayor or Provost, four resident members elected by the Board of Trade, and six members elected by the shipowners of foreign-

⁴³ *Hansard*, Third Series, Vol. CXII, col. 108-22;
13 & 14 Vict. No. 2. A Bill [As Amended by the Committee] for Improving the Condition of Masters, Mates, and Seamen, and maintaining Discipline in the Merchant Service. 20 June 1850 (469.);

⁴⁴ 13 & 14 Vict., CAP. XCIII. An Act for Improving the Condition of Masters, Mates, and Seamen, and maintaining Discipline, in the Merchant Service. [14th August 1850.];

going ships registered at that place. This Board shall be newly elected every three years (clause (7.)). Minutes of the Board's proceedings shall be kept together with all other books and documents used by Marine Boards, officers, captains, examiners, &c. which shall be open for inspection (8.). Certain functions relating to seamen and apprentices not in H.M. employment but now vested in the Admiralty may be transferred to the Board of Trade (16.). The Board of Trade shall nominate two proper persons to assist the Board in the carrying out of this Act (17.). Masters and mates applying for service on foreign-going ships shall sit for examinations which shall be provided by the Local Marine Boards which shall also appoints the examiners (24.). Passed candidates shall be given a Certificate of Competency as evidence for their sobriety, experience, ability, and general good conduct (26.). Persons who already serve or served as master or mate in the merchant service, naval service, or East India Company shall be given a Certificate of Service. In some exceptional circumstances such person can receive a Certificate of Competency (27.). The Board of Trade may cancel or suspend such certificates (28.). No foreign-going ship is allowed to proceed to sea without having been able to produce such certificates (30.). The Local Marine Boards shall establish and regulate Shipping Offices whose officers, clerks, servants, &c. shall be appointed by them (35.). Their duties shall be to keep a register of seamen with their names and character to facilitate their engaging (36.). Every master of any ship shall enter into an agreement with every seaman of his crew. This agreement shall contain the nature and length of the voyage, the capacity in which he is to serve, the amount of wages, the scale of provisions, &c. The agreement shall be signed by both (46.). The section on health on voyages regulated the space for each man, the scale of medicines, the appointment of an inspector of medicines, the need for ventilation of sleeping places, &c. (63.)-(69.). Entries into log-books shall include the character and conduct of crew members, fines and punishments, illness, injury, and death, leavings, &c. Other clauses regulated the general keeping of log-books (85.)-(93.). The Board of Trade shall be empowered to appoint local examiners and special inspectors to inquire into accidents which resulted in damage, in loss of life or property, or loss of the ship, or into neglect or disobedience of the regulations of this Act. The inspectors were empowered to call for the production of evidence (102.)(106.). Altogether the Act contained 125 clauses and came generally

into operation on 1st January 1851. Only those parts regarding the appointment of officers, the Local Marine Boards, the Register Offices for seamen, and the Shipping Offices came into operation with the passing of the Act.

It would be too much and miss the point of this work to analyse the different clauses or even the original Bills with the several changes over time and the amendments to the final product. But some issues are very obvious. Compared to the early Bills of 1837 the final Act was not very specific about the composition of the Marine Board but had more members. The power to build up a maritime code as proposed in the second Bill of 1837 was partly realised in the Act as regards examination and discipline but the power regarding the supervision of the strength of build and scale of equipping vessels were completely abolished from the Act.

The Act in itself was very comprehensive and consolidated a maritime code. It filled in the gap left between the different Acts and regulations about single subjects by taking on social issues. Unfortunately the Act was made for sea-going vessels only. Some clauses even applied to foreign-going ships only like that regarding the instituting of local Marine Boards and the examination of masters and mates. The latter was criticised by Lord Colchester before the House before the final Bill was read on 1st August 1850.⁴⁵ Other sections and clauses of more personal character like those about discipline, wages, health, &c. were partly done with humanitarian and moral intentions and were part of the new stream towards more socialist policies.

A so far final consolidation was achieved four years later with "The Merchant Shipping Act, 1854."

⁴⁵ *Hansard*, Third Series, Vol. CXIII, col. 698;

AFTERMATH.

The establishing of a Naval Department with local Marine Boards through "The Mercantile Marine Act, 1850." followed a new "Steam Navigation Act, 1851."¹ of principally the same character as that of 1846 but well amended though far from being comprehensive. Twice yearly surveys shall grant a "Sea-going Certificate" or a "River Certificate", for which fees had now to be paid, and the latter shall state the local limits within which passenger steamers were allowed to ply (penalty for all passenger vessel owners up to 100*l.* and for the master up to 20*l.*). Surveyors were empowered to order steam-vessels into docks after accidents. Regarding lights the Admiralty had now full jurisdiction over all vessels and places with no limits off shore given. After a risk of collision had been established the involved vessels shall

pass on the Port Side of the other Vessel, due Regard being had to the Tide and to the Position of each Vessel with respect to the Dangers of the Channel, and, as regards Sailing Vessels, to the keeping of each Vessel under Command; and the Master of any Steam Vessel navigating any River or narrow Channel shall keep as far as is practicable to that Side of the Fairway or Midchannel thereof which lies on the Starboard Side of such Vessel;

This clause was enforced with a penalty of up to 50*l.* and interpreted as being compulsory also for the River Thames although the clause on compensation in case of accidents was not too restrictive: compensation could not be claimed "unless it appears to the Court before which the Case is tried that the Circumstances of the Case were such as to justify a Departure from the Rule;" The juries must have been very strict.²

In 1852 the Admiralty set up a committee to consider the question of sailing-ships' lights as a result of pressure from steam-ship owners who were held responsible for damage done to sailing-vessels which carried no lights. It could not agree on side-lights because the evidence given was too diverse. Consequently it decided that sailing-vessels shall show in sufficient time a bright light to any approaching vessel.³

¹ 14 & 15 Vict., CAP. LXXIX. An Act to consolidate and amend the Laws relating to the Regulation of Steam Navigation, and to the Boats and Lights to be carried by Sea-going Vessels. [7th August 1851.];

² See chapter on Steering Rules Before 1846;

³ Kemp, J.F., 1995, p. 261; *The London Gazette*, May 4, 1852, pp. 1258-59, May 7, pp. 1294-95, and May 11, pp. 1334-35;

A final consolidation (the other major legislation after the repeal of the Navigation Laws) followed with "The Merchant Shipping Act, 1854."⁴ 223 pages with 548 clauses and 22 schedules were divided into eleven parts of which Part (I.) (The Board of Trade: Its General Functions.) regarded the general function of the Board of Trade whose inspectors were empowered to inquire into any accident and damage and to report upon the condition of hull and machinery. Part (II.) (British Ships: Their Ownership, Measurement, And Registry.) concerned the ownership, measurement, and registry of British ships. Part (III.) (Masters and Seamen.) brought into existence examinations for prospective masters and mates of foreign-going ships and home-trade passenger ships. Part (IV.) (Safety and Prevention of Accidents) regulated the number of boats and life-buoys and provided the Admiralty with power to issue regulations regarding lights but also towards fog signals which were not introduced before 1858. It also ordered watertight bulk-heads, safety valves, the adjustment of compasses with each survey, the survey of passenger steamers, &c. Other parts included Pilotage (V.); Lighthouses (VI.); Mercantile Marine Fund (VII.); Wrecks, Casualties, and Salvage (VIII.); &c. From now on the discussions about safety standards, and especially that of lights, examinations, and to a certain extent that of life-boats, moved from discussions of principal to one of technical considerations.

Instructions to surveyors regarding lights were published from 1855 onwards.⁵

Another Admiralty Committee was appointed in 1856 to sit again upon the question of sailing-ships' lights. The important question was if the green and red lights shall show the tack the vessel was on, as was the custom, or if the lights shall indicate the side of the ship. The Committee pointed out that in the first case an additional identification would be necessary to show if this vessel was a steamer or sailing-ship. Such would not be necessary in the other case and immediate action could be taken.⁶

Adopting the latter point the new Admiralty code for lights and fog signals included those for sailing-vessels. Steamers with the steam up had to sound a steam

⁴ 17 & 18 Vict., CAP. CIV. An Act to amend and consolidate the Acts relating to Merchant Shipping. [10th August 1854.];

⁵ H.C. and H.L., 1895 [C.—7908.-I.], p.

⁶ Kemp, J.F., 1995, pp. 261-62;

whistle but when not under steam were to sound a fog horn or bell as were sailing-vessels. Sailing and steering regulations were not part of the code.⁷ They came into operation on 1st October 1858 and were accepted by France at the same date, and later on by Austro-Hungary, Sweden, Hanover, and Hamburg of which latter was not noted in *The London Gazette*. A separate notice of October 26 exempted open boats and fishing boats from these regulations.⁸

"The Merchant Shipping Act Amendment Act, 1862."⁹ applied Part (III.) of "The Merchant Shipping Act, 1854." to fishing boats but exempted some clauses including that on entries into the official log-book which also concerned collisions. A new code of Regulations for Preventing Collisions at Sea was drawn up in the schedule to come into operation on 1st June 1863. They could be annulled or modified on recommendation of the Admiralty and Board of Trade. The surveyors duties were extended towards the means of making fog signals. Rules for navigating rivers and harbours continued in force and were responsibility of Harbour Trustees or Body Corporate. It further regulated that not only foreign ships were liable to British collision regulations while in British jurisdiction, almost a matter of course, but also that these regulations may be applied to foreign countries and its ships while not in British jurisdiction. This automatically solved the question of prosecution proceedings.

The new code consisted of 20 clauses of which new ones included lights for steam-tugs, exceptional lights for small sailing-vessels, lights for pilot vessels, a meeting regulation for a steam and a sailing-ship meeting, that ships under steam have to slacken speed when near each other and in fog, vessels overtaking other vessels, a proviso to save special cases, and a final clause that no ship under all circumstances shall neglect proper precaution. The port-helm rule was abandoned. As some alterations were made to the code by several countries they were corrected to bring them to the same standard and re-issued.¹⁰ By 1866 they were adopted by 33 nations and states, most of them European as well as North and South American.

⁷ *The London Gazette*, March 5, 1858, pp. 1293-94;

⁸ *The London Gazette*, October 29, 1858, p. 4613;

⁹ 25 & 26 Vict., CAP. LXIII. An Act to amend "The Merchant Shipping Act, 1854," "The Merchant Shipping Act Amendment Act, 1855," and "The Customs Consolidation Act, 1853." [29th July 1862.];

¹⁰ *The London Gazette*, January 13, 1863, O.C. of 9th January 1863, pp. 188-90;

The Assistant Secretary of the Board of Trade, Thomas Gray, architect of the regulations of 1863, published a pamphlet in 1867 in which he explained the value of coloured side-lights and the terms 'end on ' and 'nearly end on'.¹¹ He also was the author of four mnemonic verses explaining what to do in cases of two steam-ships meeting, passing, and crossing and the necessity of a good look-out. This aid to memory was soon translated into other languages. Explanatory regulations clarifying clauses (11.) and (13.) regarding the terms 'End on or nearly End on' for two sailing-ships and two steam-ships meeting were published in 1868.¹²

The technical discussion culminated in the first International Marine Conference held in Washington from October 16 to December 31, 1889. Beforehand an amount of correspondence was circulated which filled a volume of 363 pages,¹³ followed by two volumes of conference proceedings of together 658 pages plus index¹⁴ and a few other accompanying parliamentary papers. The proposed rules were not straight away adopted but those of 1880 remained in force until 1884 and these until the Order in Council of November 11, 1897.

A Select Committee was set up early in 1895 to inquire only into clause (15.) (Fog Sound Signals) as proposed by the Washington Conference: again 123 pages were filled with minutes of evidence.

Another subject excessively discussed was that on the manner of how side-lights should best be screened, in what angle the inner rays should cross the keel-line, how it had to be measured, what kind of wick should be used of what width, the effect of electric light compared to oil lamps, &c. The Select Committee accompanied their Report of 280 pages with few desk-sized drawings.¹⁵

The international Regulations for Preventing Collisions at Sea of 1897 were the last code of the 19th century and were expanded to 31 clauses which were themselves mostly divided into several paragraphs.

¹¹ See chapter on Steering Regulations Before 1840, sub-heading 2;

¹² *The London Gazette*, August 4, 1868, p. 4307;

¹³ H.C. and H.L., 1890 [C. 6132.];

¹⁴ H.C. and H.L., 1890 [C. 6133.], 1891 [C. 6255.], and 1892 [C.—6664.];

¹⁵ H.C. and H.L., 1895 [C.—7908] and [C.—7908.-I.];

CONCLUSION.

The first half of the 19th century was a most intensive time of political, industrial, economical, and social changes. It saw a sudden increase in governmental interference into every aspect of human life: political reforms concerned elections and taxes, the Reform Act of 1832, industrial and economical regulations were brought in through the Factory Act of 1833, the Navigation Laws and their repeal in 1848, and "The Mercantile Marine Act, 1850". Social conditions regarded health, education, exploitation of labour, and Poor Law. These interferences originated in the process of industrialisation. The application of steam to the mass production of goods in centralised factories rather than at home in individual workshops changed the whole issue on the working environment and affected the whole rest of physical and mental existence. Instead, for land labourers for example, of being able to control labour himself the worker was either made redundant or had to sell himself into the mercy of his employer as eventually his wife and their children did. In the one case he and his dependants might have been eligible to the Poor Law, in the other case to the Factory Act of 1833 which regulated working time and working hours. More or less natural working rhythms were replaced by those of machines as time meant money and profit for the capitalist and exhaustion and lowest wages for the worker.

Government interference in maritime subjects was only another but a very important interference. It could only be of restrictive character and was bound to provoke the protest of a new merchants' and business' generation: of the capitalists. In maritime categories this started with the approach of steam propulsion as it meant independence from wind, tides, and currents and allowed more control over time and distance while before sailing-vessel's voyages were often delayed by unfavourable winds and tides and their speed was much slower anyway. Steam-tugs could shorten considerably the time as the sailing-vessel could be towed down-river in all circumstances. Growing ship sizes also made winter voyages more possible. But the early steamers needed to use up quite a lot of space for coal storage which otherwise had been used for cargo. That meant that they had to be worked even more efficiently. These capitalists used very different approaches and principles in order to maintain and articulate their interests. On one hand they wanted to be left entirely in peace as

in the case of "The Mercantile Marine Act, 1850." as this Act forced responsibilities upon the shipowners which distracted them from their only interest: to make as much profit as possible in the shortest time possible. On the other hand they opposed the repeal of the Navigation Laws which in fact were a strong governmental interference itself for such restrictions contradicted all (modern) capitalistic principles of free and unrestricted trade. When the shipping interest spoke about non-interference they meant of course non-interference into the then present protectionist state.

It was the discussion in Parliament on safety issues like ships' lights, life-boats, and speed which eventually led to the legally structuring of the maritime sector of the U.K. When steam-shipping began in 1815 there was no governmental body or authority at all which entirely dealt with shipping questions apart from the Admiralty. But merchant and pleasure shipping was not their jurisdiction. Involvement into merchant shipping was only through the supply of seamen to the Navy in both peace and war times and through Admiralty Court proceedings after stranding, losses, &c., as well as collisions. Mercantile marine questions were considered by up to nine departments which could be involved in that particular subject, hindering a sense of responsibility for decisions and consequently for results by a single department.

The other side, the extra-parliamentary shipping interest (shipowners, shipbuilders, holders of shares in shipping), was better represented. Local shipowners' associations were set up in the post-war years and worked efficiently as lobby in Westminster for the subscribers interests when national policies became threatening.¹⁶ The General Shipowners' Society was founded in London in 1831 and was the successor of an earlier society which was itself based on the Ship Owners of the Port of London.¹⁷ It was even more efficient due to its location. To end a career as wealthy merchant, proprietor, industrialist, &c. as M.P. in Parliament was common. Shipowners, steamship proprietors, and shipbuilders were among both the Conservatives/Tories and the Liberals/Whigs. Their number is disputed but it is clear that there were only few compared to other businesses. Some of them belonged to the General Shipowners' Society like George Frederick Young (Whig 1831-38) who also was its Chairman five times between 1834 and 1852.¹⁸ But according to Palmer there is no evidence that

¹⁶ Palmer, 1990, p. 36;

¹⁷ Ibid., p. 30;

¹⁸ Ibid., p. 32;

these M.P.s got the seats particularly for their occupation or position or got any financial benefit out of it. It was rather their political importance which made them to M.P.s like the founders of the Peninsular & Oriental Steamship Company A. Anderson (Liberal M.P. from 1847-52) and B. McGhie Willcox (Liberal M.P. from 1847-62).¹⁹ But support for legislation which meant to spend money on boats, life-saving appliances, health provisions for the crew, &c. could not be expected as they were not productive for profit but made the profit margin slimmer. To develop rules for the prevention of accidents on rivers and at sea had even been a step further.

It needed several severe fatal accidents between steam-ships before the first Select Committee was installed to investigate accidents of steam navigation: boilers, steering gear, speed, lights, &c., but as centralised as this country was (and is) it meant focusing on the River Thames. This and other reports' suggestions towards more safety and especially lights were still not acted upon. Bills kept failing as well and it was left to the local ports and Trinity House as the authority closest to merchant shipping to draw up codes for avoiding accidents and collisions. Did the M.P.s adopt the view of the shipowners that the advantages of steam propulsion have to come in the first place to make sense of it? Was it helplessness about how to handle such fast developing novelty with such widespread consequences? Was it real naivety to suggest that passengers would choose themselves the safest ship, or was it just general carelessness as life became so cheap and easily available in a society in which people especially of lower income classes were only accounted for as masses: of labourers, sources for profit, consumers, jobless, poor, &c.?

The code of 1839 was not considered by the Admiralty as being for merchant vessels as it was not their jurisdiction, and it was again Trinity House, this time London, to draw up a code for merchant vessels by (sensibly?) adopting the code already in use by the Admiralty but which contradicted wide spread practice for example in Liverpool, the second biggest port, and its approaches. Was it the arrogance of the metropolis that the Thames remained the least and last regulated river while in most other regions either strong local customs or written rules existed, although much less needed, made up by harbour authorities or Trinity House? The rules of 1839 were certainly knowingly leading to confusion and only one more

¹⁹ Palmer, 1990, pp. 23-24;

evidence for this arrogance and conflict between London and Liverpool. Another such remainder of rivalry was that between London's General Shipowners' Society and the Liverpool Shipowners' Association. Lloyd's insurance was newly set up as Lloyd's Register of British and Foreign Shipping in 1833. Its constitution required that half of the committee members were nominated by the General Shipowners' Society. Liverpools shipbuilders and shipowners claimed that the new register discriminated against Liverpool shipping and favoured London-built vessels. The Liverpool Shipowners' Association set up a competing register but it did not attract enough subscribers so that it had to be abolished and finally the Association agreed to send a representative as member to the General Shipowners' Society.²⁰

The situation had changed by 1840. Hardly any of the general shipowners' associations was left: they did not meet, were caught in legal battles, were about to be reduced, already dissolved, or were otherwise completely inefficient. There was no need for meetings and a lobby because the times of economical distress were over. There was also a lack of sense of common identity as there were hardly shipowners who depended entirely on income through their ships. Their business was widely spread and shipping took up only a fraction. Efforts were made to establish local associations again.²¹ The Government still did not make any efforts towards an equivalent body for themselves.

When it finally came to the Steam Navigation Act, 1846 there was only the Admiralty as governmental and independent body to turn to in the need to establish the best way for showing lights and to make rules accordingly. But much earlier numerous suggestions for steering rules as well as to lights were brought, sometimes personally, to the Admiralty's attention, often developed from experience. Instead of investigating they hardly took notice and sent rejecting letters. Robert Rettie's lamps were only partly an exception. But when they were empowered through the Steam Navigation Act of 1846 to establish a system of lights they wrote in a tone of greatest matter of course and knowledge about the problem and its remedy and stressed the cleverness of having introduced the screen although the City of Dublin Steam Company had their lights purposely and by order screened 13 years before (1834) with

²⁰ Palmer, 1990, p. 33;

²¹ Ibid., pp. 33-35;

the greatest success. Was it, again, a certain amount of arrogant attitude against individuals or anything not coming from a Government body ?

N.A.M. Rodger wrote in his book about Admiralty administration:²²

The Tory government which was in power when the Peace of Vienna was signed, and remained until 1830, could not reasonably have been accused of radical sympathies, but it was not unaffected by the climate of the times. A new spirit was abroad in the land, a spirit of morality and responsibility. Bentham's formula of individual responsibility as the key to honesty and efficiency was on all lips. Boards were no more than a mechanism for dissipating responsibility; behind their bland exterior, sloth and incapacity slumbered undisturbed, peculation and favouritism flourished unchecked. The profligacy of government was both the cause and the effect of the corruption of civil society, as the patronage of the state built, preserved and sheltered within an edifice of privilege from which all its inmates benefited, and only the public suffered. For the Whigs, Radicals and Evangelicals who pressed the new ideas with varying emphasis and enthusiasm, this was in large measure a moral crusade for freedom and honesty. The efficiency of state administration was not the primary object of their attention; it was assumed to flow automatically from right measures, rightly applied. The new currents of thought were not so much concerned with the objects of administration as with the means of attaining them; it mattered chiefly that the state should conduct its affairs in a plainly moral fashion, and from a morally sound system would necessarily proceed efficiency and policy.

With the year 1830 the political influence of the Admiralty declined fast and fewer officers in Parliament could influence only fewer policies.²³ In 1832 the Admiralty's Junior Boards were reorganised into branches, the estimates cut by about 20% and more than 150 staff dismissed. The amount of work was growing all the time and it became hard to work through the daily routine. The co-ordination of the different branches became in fact less effective as they met only at the top.²⁴

About their role towards the introduction and improvement of steam navigation Rodger wrote:²⁵

One question came to dominate the material changes of the Navy; the question of steam. The Boards of Admiralty of those days have been caricatured as blinkered reactionaries, "Opposed to everything in the shape of reform and improvement". One pronouncement in particular has often been quoted; "Their Lordships feel it their bounden duty to discourage to the utmost of their ability the introduction of steam vessels, as they consider that the introduction of steam is calculated to strike a fatal blow at the naval supremacy of the Empire". In fact, in the 1820s when this and similar statements were made, they represented an eminently sensible position. Steam vessels were not yet reliable sea-going ships, let alone warships, and until some other power took them up, there was every reason for a prudent Board to discourage them. Once the steamer began to be a useful addition to the fleet, successive Boards took it seriously, first as an auxiliary, and in time as a fighting ship. [. . .]

²² Rodger, 1979, p. 94;

²³ Ibid., p. 97;

²⁴ Ibid., pp. 98-100;

²⁵ Ibid., pp. 101-02;

It is arguable that the Admiralty's approach to the introduction of steam was considerably more far sighted than that of private shipowners, and that it proved surprisingly good at adapting to new technologies, at least at the relatively slow rate of change up to the 1860s. It was a characteristic opinion of the times that corporate bodies, especially government bodies, were of their nature reactionary. [...] The men who caught the public's attention with their denunciations were frequently those who had suffered at the Admiralty's hands rejection of some favourite (and potentially lucrative) proposal. The pages of the Admiralty Digest headed "Inventions and Visionary Suggestions" grew more numerous every year, as the number of eager inventors increased. Novel types of armour were a popular favourite, such as india-rubber or springs (so that the shot would bounce off), canvas, gutta-percha, papier-mâché and old boots.

Scepticism and respectful distance towards any new invention was indeed a sensible attitude but is not a satisfying answer for their reluctance to do anything at all and to develop some responsibility as steam navigation had developed too far well before 1839 and 1846 for it to be ignored.

The present Navigation Laws originated from 1650 and were made to establish and educate a body of skilled merchant seamen as a source to man the Navy during war as well as peace times. To guarantee this 'nursery of seamen' the way of manning British owned vessels had to be enacted but also trade areas where foreign vessels had to be excluded from. A vessel counted as British if it was built and owned in Britain with the master and three quarters of the crew also being British. 'Britain' included the colonies. But the system was much more complicated. Some clauses were open to interpretation, others discriminated foreign vessels directly as they mostly had to pay higher port dues, light dues, higher charges for anchorages, and sometimes even special corporation tolls. The clauses regarding manning were more loosely interpreted in consequence of crew running away whose places had to be filled again. The Navigation Laws were a weapon against Britain's maritime rivals especially in the trade with the West and East Indies and North America. This 'nursery' concept was again confirmed in the Merchant Seamen's Act of 1835. In the 1840s about 40% of British shipping tonnage clearing in British ports concerned trade from which foreign owned vessels were completely excluded.²⁶

In 1823 the predecessor of the General Shipowners' Society petitioned the Government not to expand the reciprocity treaties but to assist with more protection as difficulties of competition have already arisen in the north European trade.²⁷

²⁶ Palmer, 1990, pp. 40, 42, 49, 63;

²⁷ Ibid., p. 74;

In a speech in May 1826 Mr. Huskisson, Tory President of the Board of Trade from October 1823 to August 1827, described the conflict between liberal policies and the Navigation Laws: "the regulations of our navigation system, however salutary they may be, must, more or less, act as a restraint on that freedom of commercial pursuit, which it is desirable should be open to those who have capital to employ", but he admitted that the Navigation Laws were of highest necessity because needed in the interest of national defence.²⁸

Even Adam Smith accepted the Navigation Laws although economically damaging by diminishing the number of sellers and necessarily those of buyers as an acceptable exception to the rule "to buy as cheap and to sell as dear as possible" and thought them to be "the wisest of all the commercial regulations of England."²⁹

George Lyall (Whig M.P. from 1833-35), Shipowner and Merchant in London and Chairman of the General Shipowners' Society, spoke on 3rd February 1832 before the Political Economy Club of which he was a founder member.³⁰

The Navigation Laws have been so modified by the Act of 1824, that they are very unlike their original of 1650; but the great majority of those who spoke, and [Poullet] Thomson particularly, were clearly of opinion that whatever remains of them ought to be done away with; that they were clearly injurious to the wealth and not necessary to the naval pre-eminence of this country.

J.S. Mills and with him the liberal Manchester School of Economics also wanted the Navigation Laws repealed for the British ships were now capable of competition.³¹

In an explanation of a Bill brought in by G.F. Young on 5th June 1834 to repeal the Reciprocity of Treaties Act of 4 Geo. IV, CAP. 77, he described the duties on goods imported in foreign ships as "the most important protection which British navigation possessed". The treaty had in fact increased the number of foreign vessels. He argued further that the Navigation Laws and the Registry Acts should be either repealed to enable them to build and navigate their ships as cheaply as possible or give

²⁸ Palmer, 1990, p. 70;

²⁹ Ibid., p. 24 and as quoted p. 71;

³⁰ Ibid., as quoted p. 72;

³¹ Ibid., p. 73;

them the appropriate protection. Shipowners demanded protection or free trade not as it was their conviction but as the momentary situation suited them.³²

Young lost his seat in 1838 and with him the spokesperson for the shipping industry went and did not come back before 1841 with the re-election of George Lyall. As Chairman of the East India Company he moved for the appointment of a Select Committee to inquire upon the trade and navigation with the colonies and how it was affected by the Navigation Laws of the last 20 years, how it could be modified and enabled to enter competition. Lyall did not go with any purposes into this move but wanted to secure facts first. The General Shipowners' Society feared unfavourable results and had rather not seen this motion. Only after three years, in June 1844, Lyall was granted support. Gladstone, then Conservative Vice-President of the Board of Trade, warned of any visions that the reciprocity treaties could be repealed. The Committee, with Lyall as free trade Shipowner took some evidence from protectionists but failed quickly and did not present a Report.³³

With the repeal of the Corn Laws in May 1846, because of concern of shortage of grain supply, the possibility of having the Navigation Laws annulled became more real. This Act was to be in force from January to September 1847 and was later renewed. As this brought the shipping industry more business, because Britain was a big net importer of grain, the preference on bacon, beef, hides, sugar, and timber was also abandoned and resulted in further loss of protection. The Canadians protested but thought quickly about how to compete with foreigners. This was followed by the repeal of the British Possessions Act in July 1846 and gave the colonies full control over their tariffs. The suggestion by Goulburn, Conservative Chancellor of the Exchequer until June 1846, that this freedom would quickly demand the repeal of the Navigation Laws became reality. The Free Trade Association in Montreal sent a petition for the repeal to the Colonial Office, the Toronto Board of Trade did the same, and planters in the West Indies also asked for relief. The snowball effect carried on abroad and ironically countries which were keen on tightening their commercial interests showed the biggest interest, for example Prussia.³⁴

³² Palmer, 1990, pp. 76-77;

³³ Ibid., pp. 78-79;

³⁴ Ibid., pp. 84-87;

After the change of Government from Conservatives to Whigs the new President of the Board of Trade from June 1846-47, Earl of Clarendon, re-assured a delegation of the General Shipowners' Society on 21st December 1846 that the Government has no intention to change the Navigation Laws. The radical M.P. Joseph Hume made the consequent move in the debate on the affect of the Navigation Laws towards corn to ask for all duties regarding shipping to be abandoned. A proposal for an appointment of a Select Committee got support from several M.P.s and the Government could finally not deny its support. The first appointment of Select Committee members did not get the approval as the list was dominated by free traders. The second list was four to four with the rest being undecided. The issues of both parties were discussed very freely and exhaustively, in 33 sessions with more than 8,000 questions. The questions to the free traders about competition could not be proved because of lack of information and speculation. They were unable to show that a repeal of the Navigation Laws would have a positive result.. At the end again no Report was published as the evidence was so diverse with opinions so far divided that it had been impossible to draw a conclusion between the members of the Committee.³⁵

The repeal of the Corn Law had not shown any negative effect and gave a good idea about the difference between expected outcome and real development. It was agreed to extend the repeal.³⁶

So far the issue had become more and more a self-developer, nearly seemed to have run out of control. The protectionists surely did not control or even only slowed down the progress anymore. They seemed to be in apathy as the *Shipping Gazette* later on wrote. And it went even bigger when Henry Labouchere became the new succeeding President of the Board of Trade since the general election. Together with the Foreign Office he worked towards opening the indirect trade with the United States, but in September 1847 he was ordered to seek for more. A letter to the Board of Trade by Bankroft, a strong supporter of Labouchere, with respecting questions was added another paragraph which asked for proposals from the United States.³⁷

³⁵ Palmer, 1990, pp. 88-90, 94, 99-100, 105;

³⁶ Ibid., p. 105;

³⁷ Ibid., pp. 114-15;

At the beginning of February 1848 the shipping elite was on the plan again. A march through the city was refused permission and the demonstration showed themselves on the Thames with 700-800 boats in a line. G.F. Young provided boats and flags themselves. Crews and Masters had ribbons in their hats with 'Navigation Laws' in yellow, sometimes in gold on it. The leaders with J.T. Wawn, Liberal M.P. from 1841-52 and Shipowner himself, handed their memorial to the Home Office. The *Shipping Gazette* called for an anti-repeal association. This was only the beginning of a well organised and obviously desperate campaign, directed at the Commons, to rescue what is left. A huge number of petitions was handed over. Some of them were written by supporters of agricultural protection. But it was also possible to organise pro-repeal petitions from London, Liverpool, Sunderland, Yarmouth, Dundee, and Belfast which only were a fraction in number compared with the rest.³⁸

Instead of coming forward with a Bill on 15th May 1848 Labouchere brought in another resolution. He did not intend to open the coasting trade to foreign vessels which was regretted by Gladstone, the former President of the Board of Trade who afterwards had the post of Secretary for War and the Colonies. Next day Labouchere explained the immediate background to the new Act, ran through the history of alterations, he pointed out the importance of Huskisson's measures, he justified demands from overseas, &c. A new wave of meetings and petitions came in and the shipbuilding industry, joiners, caulkers, sawyers, and riggers could be heard, but not loud. The petition from London feared not (only) for business but came with a new twist: it feared for social harmony. Free traders had a much harder task to arouse interest and collected a much smaller number of signatures. The protectionist Herries protested on 29th May pointed out that the Government did not take the chance to make a case out of this issue but that the demands for repeal came all from outside. And how was the Navy to be manned? He wanted only modifications as acceptable amendments.³⁹

On 9th June 1848 the amendment was defeated with 294 to 177 votes.⁴⁰ The protectionists tried to delay the Bill by going deepest into detail and the shipowner G.R. Robinson (Conservative M.P. 1826-37 and 1847-50) quickly linked Chartist

³⁸ Palmer, 1990, pp. 24, 118-24;

³⁹ Ibid., pp. 126-31, 135;

⁴⁰ Ibid., p. 131;

demagogues, distressed population, seamen's demonstration, and the 'revolution' on the Continent together.⁴¹

Finally on 14th February 1849 Labouchere introduced "A Bill to Amend the Laws in force for the Encouragement of British Shipping and Navigation."⁴² All limitations to overseas trade shall be ended. Restrictions shall be reintroduced if other countries do not respond, the proportion of British seamen shall remain, &c. He intended to allow all vessels to touch at intermediate British ports for custom clearance which had meant to open British Coasting trade partially to foreigners. This clause was later withdrawn.⁴³ The amended Bill bore the date of 26th March⁴⁴ and the final Act the date of 26th June 1849⁴⁵ to come into operation on 1st January 1850.

The Merchant Shipping Law Amendment Act of 1853⁴⁶ allowed foreign seamen man British ships. Their limitation to one quarter was abolished. In March 1854 the coasting trade was opened to foreign vessels.⁴⁷ The repeal of the Navigation Laws was finally completed.

Summarising this survey it can be said that the development of lights was neither straight forward nor can it be seen on its own only. That lights appeared at all was the result of a new technical development, the steam propulsion, which was a new impact and incalculable in its movements. On the Clyde, and later on on other rivers, the introduction of lights seemed to have been more a rationally minded decision with sometimes no legal authority involved but probably mostly obeyed. On the Thames the exact opposite was the case and shows once more an arrogantly acting capital. Although incredibly busy already in Georgian times there was no sign of effective legislation for the masters navigating the Thames. Profit was the target and had for today's proportions outrages appearances and consequences. The laws were only bye-laws and not only attacked by the capitalists but also so questionable between the public and civil servants that a battle between them and the capitalists, some times a

⁴¹ Palmer, 1990, p. 133;

⁴² 12 Vict., Bill, 16 February 1849 (33.);

⁴³ Palmer, 1990, p. 147;

⁴⁴ 12 Vict., Bill, 26 March 1849 (167.);

⁴⁵ 12 & 13 Vict. CAP. XXIX. An Act to amend the Laws in force for the Encouragement of British Shipping and Navigation. [26th June 1849.];

⁴⁶ 16 & 17 Vict. CAP. CXXXI. An Act to amend various Laws relating to Merchant Shipping. [20th August 1853.] The Merchant Shipping Law Amendment Act, 1853."

⁴⁷ 17 Vict. CAP. V. An Act to admit Foreign Ships to the Coasting Trade. [23d March 1854.];

legal battle, was constantly going on. But it was not especially the issue of lights or speed which came up but a growing concern and responsibility for (the safety of) the public since it appeared in public and could be conveyed in such vast numbers. This went together with rising income for the middle and higher classes and the introduction of public education, also with the working classes organising themselves in unions and other self governed groups, altogether a general growing intellectual consciousness and awareness for the human being. It pressed so much that the most obvious legislation, because of concerning the most practical points, came first with the Steam Navigation Act, 1846. It secured the Admiralty to merchant shipping and looks like this was the first and careful test to further governmental interference. Appropriate questions could now easier be asked, for example the survey of lights, and a startpoint was found to get away from principal questions to those of technical relevance. The repeal of the Navigation Laws was a separate subject but as the first major impact established the Government's interference in shipping matters as they fought the fierce resistance of the capitalists straight forward and very successfully. It was a principal question who succeeded. The most important Act was "The Mercantile Marine Act, 1850." It established the Board of Trade and gave it a definition within the shipping industry with clear competencies. The Act constructed the position of an ambassador, addressee, and middles-person for the concerns of both the Government and labourers in the mercantile marine who was so far not existing. For more efficiency and local needs it also established the local Marine Boards as outposts and a whole range of innovations which became basic instruments for later legislation and amendments like examinations, registers and inquiries of casualties and losses, the Merchant Seamen's Fund, health, accommodation, provisions, and medicine which made worst abuses now prosecutable. The modern idea of free trade and free enterprise was established. Another important Act brought in by Henry Labouchere was "The Steam Navigation Act, 1851." as it improved considerably the repealed Act of 1846. These Acts built the initial framework and base for forthcoming legislation and got to a final stage with the commencement of "The Merchant Shipping Act, 1854." The competencies and responsibilities of the Board of Trade were defined again and other legislation newly included, like lighthouses, pilotage, &c. or further detailed. It was a definitive product for the next 40 years.

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